

Message

From: Turville Rick [Rick.Turville@kalmancoinc.com]
Sent: 9/12/2021 3:41:56 PM
To: Taylor, Jillianne [Taylor.Jillianne@epa.gov]
CC: mark [mark@spectralsystemsglobal.com]; robert.kroutil@kalmancoinc.com
Subject: Draft ASPECT report for 11 Sept 2021
Attachments: ASPECT Summary - Hurricane Ida 11 September 2021.docx

Jill,
Please find attached the draft report for 11 Sept 2021. The team worked up a paragraph concerning the oil detection. Please take a look and let us know if you have any questions or require any changes.

Regards, Rick

Rick Turville
Kalman and Company, Inc.
1000 Corporate Center, Suite 301
Stafford, VA 22554
540-628-7325 - Office
757-353-8302 - Cell

Airborne Spectral Photometric Environmental Collection Technology

ASPECT Air Quality Survey Baton Rouge, LA. September 11, 2021



ASPECT Mission Supporting:

Eric Delgado
On-Scene Coordinator
Delgado.Eric@epa.gov

Initial Mission Request

Brian Fontenot
Louisiana Department of Environmental
Quality

ASPECT TEAM

Jill Taylor
Chemical/Photometric Lead
Taylor.Jillianne@EPA.gov
214-406-9896

Tony Honnellio
Radiological Lead (Detail)
Honnellio.Anthony@EPA.gov
617 947-4414

Ed Argenta
CBRN CMAD FOB Branch Chief
Argenta.Edward@EPA.gov
202-843-4511

Table of Contents

[TOC \o "1-3" \h \z \u]

Acronyms and Abbreviations

Alt	Altitude (in feet)
AGL	Above Ground Level
cm	centimeter
CDT	Central Daylight Time
DEM	Digital Elevation Model
ESF-10	Emergency Support Function #10 – Oil and Hazardous Materials Response
FEMA	Federal Emergency Management Agency
ft	feet
FTIR	Fourier Transform Infrared Spectrometer
FTP	File Transfer Protocol
igm	Spectral data format based on grams format
IR	Infrared
IRLS	Infrared Line Scanner
jpg	JPEG image format
Kts	Knots
LDEQ	Louisiana Department of Environmental Quality
mph	miles per hour
m/s	meters per second
MSIC	Digital photography file from the Imperx mapping camera
MSL	Mean Sea Level Altitude (in feet)
PAN	peroxyacetyl nitrate
Ppm	parts per million
RMP	Risk Management Plan

UTC

Universal Time Coordinated

Executive Summary

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On September 2nd, 2021, the State of Louisiana requested ESF-10 assistance through FEMA and Region 6 asked for the ASPECT plane to be deployed in support of the response to Hurricane Ida. The state wanted assistance monitoring facility emissions in the industrial area between Baton Rouge and New Orleans, where flaring is resulting in the visible emission of black smoke.

ASPECT was tasked to perform remote chemical sensing over target properties to screen for airborne chemicals and take high-resolution photos to provide situational awareness. Potential areas identified for monitoring included: East Baton Rouge, Ascension, Iberville, St. James, St. John, St. Charles, Jefferson, and Orleans. The system conducted one flight mission on 2 September 2021 including air monitoring survey collections over the target area with favorable weather conditions for all passes. Although two black plumes were visible over one of the sites, no major emissions were detected with the FTIR.

A continuation of the overall Baton Rouge facility survey was conducted on 3 September 2021. Two data collection flights were conducted which bracketed a Presidential temporary flight restriction not allowing any flight activity. A total of 12 active data collection passes were made covering 8 facilities with no chemical plumes or compounds being detected. Other than flares and isolated steam plumes, little process activity was noted in the data.

Flight 5 and 6 were conducted as part of survey operations conducted on 4 September 2021. A total of 17 facilities were surveyed. Ammonia was detected and confirmed at a maximum concentration of approximately 14 ppm in addition to ozone and peroxyacetyl nitrate. Analysis of IR imagery indicated that some facilities are showing hot process units.

ASPECT conducted two data collection missions on 5 September 2021 with the focus being facilities in St. Bernard, Terrebonne, St. Charles, and St. James areas. A total of 32 active data collection passes were made covering 21 facilities. Imagery collected within impact areas of the storm showed some oil sheen and releases to secondary containment. No compounds were detected on either mission.

Two data collection missions were conducted by ASPECT on 7 September 2021 with the primary focus to collect additional data over target surveyed on 5 September 2021 (St.

Bernard, Terrebonne, St. Charles, and St. James areas). A total of 16 data collection passes (2 test and 14 active) were made over about half of the target list. Weather conditions complicated the mission with numerous convective cells and low clouds in the area. No compounds were detected on either flight. conducted two data collection missions on 5 September 2021 with the focus being facilities in St. Bernard, Terrebonne, St. Charles, and St. James areas.

ASPECT conducted two missions on 8 September 2021 with the primary objective to complete the mission of collecting additional data at facilities assigned on 7 September. Weather conditions over the target areas within St. Bernard, Terrebonne, St. Charles, and St. James parishes was marginal due to clouds and convective activity. A total of 21 data collection passes (2 test and 19 active) were required to complete the mission with no detections observed.

ASPECT conducted two oil survey missions on 11 September 2021 which included 32 data collection passes (2 test and 30 active). 8 grid areas were developed, and the system was able to survey grids 3 through 8 due to time on station. Oil was detected in four data collection passes in grids 6 and 7. Isoprene was detected on pass 18 at a low level of 0.249 ppm. No other compounds were detected.

ASPECT Air Quality Survey

Hurricane IDA

Baton Rouge, LA

September 11, 2021

Background and Operational Overview

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On 2 September 2021, ASPECT was tasked to conduct a wide area air quality screening level assessment of areas populated with Risk Management Plan (RMP) sites and petrochemical facilities using the ASPECT system for detections of any airborne contaminants from ASPECT's 76 chemical detection library in the areas affected by Ida. The Region wanted to know if any detections were found, the location of the detection, and the concentration detected. Sites including Marathon Petroleum Company, Shell Norco Facility, and Phillips 66 pipeline site were surveyed. There were no chemical detections at the sites surveyed. Extremely slow satellite transmission speeds (possibly due to high bandwidth use by other first responders) resulted in long delays in data collection. Some chemical photos were pulled down during flight, with the majority needing to be pulled down with a more high-speed internet connection on the ground.

On 3 September 2021 ASPECT was tasked with a continuation of the general Baton Rouge area survey and conducted two flights. 8 locations in the Baton Rouge area were surveyed as part of two flights. A total of 12 active data collection passes were made covering 8 facilities with no chemical plumes or compounds being detected. Other than flares and isolated steam plumes, little process activity was noted in the data.

Two data collection flights were conducted on 4 September 2021 focusing on facilities south of Baton Rouge. A total of 29 active data collection passes were made covering 17 facilities. Analysis of IR imagery indicated that some facilities are showing hot process units. Ammonia was detected and confirmed at a maximum concentration of approximately 14 ppm.

ASPECT conducted two data collection missions on 5 September 2021 with the focus being facilities in St. Bernard, Terrebonne, St. Charles, and St. James areas. A total of 32 active data collection passes were made covering 21 facilities. Imagery collected within

impact areas of the storm showed some oil sheen and releases to secondary containment. No compounds were detected on either mission.

Due to poor weather, ASPECT did not conduct any flight activities on 6 September 2021. ASPECT was tasked with two missions on 7 September consisting largely of revisiting facilities surveyed on 6 September 2021 for the purpose of collecting additional data.

ASPECT conducted two missions on 8 September 2021 with the primary objective to complete the mission of collecting additional data at facilities assigned on 7 September. Weather conditions over the target areas within St. Bernard, Terrebonne, St. Charles, and St. James parishes was marginal due to clouds and convective activity. A total of 21 data collection passes (2 test and 19 active) were required to complete the mission with no detections observed.

ASPECT did not conduct missions on 9 September 2021 or 10 September 2021 but was tasked with an oil detection mission on 11 September 2021. The Louisiana Department of Environmental Quality (LDEQ) provided several prioritized target areas located in an area encompassing Port Fourchon and north toward New Orleans. Figure 1 shows the target survey areas marked in red.

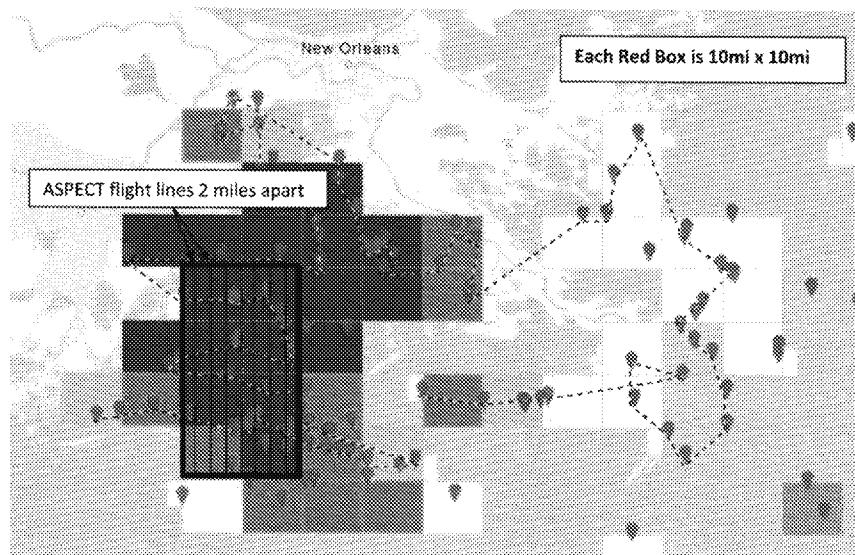


Figure 1. LDEQ Oil Survey Area, 8 September 2021

General Mission Objectives

Once granted access to fly over the sites, the following general mission objectives were employed in conducting data collection with ASPECT:

1. To capture an overall, situational awareness of the incident using aerial photography with:

-

- Oblique camera—photos taken by hand from the view/position of the co-pilot, and
 - MSIC photos—advanced camera mounted underneath the plane for a top-down view of the designated sites.
2. To qualitatively locate and characterize any the visible and non-visible components of a plume, oil on water, as well as any areas on fire:
 - Using the Infrared Line Scanner (IRLS)
 3. To screen for the presence and location of specific chemicals within ASPECT's automated chemical detection library:
 - Using the Fourier Transform Infrared (FTIR) Spectrometer

Flight Conditions and Status

Weather and Site Conditions

Prior to each flight, an updated status of the current and forecasted weather, site conditions and any potential flight obstacles including radio towers impacting safety is assessed by the crew. A summary of the ground weather conditions during the missions can be found in Table 2 and 3.

Table 2. Ground Weather for New Orleans, LA, Flight 13
11 September 2021

Time	1053	1153	1253	1353	1453	1553
Wind direction	45 degrees NE	45 degrees NE	22.5 degrees NNE	45 degrees NE	67.5 degrees ENE	90 degrees E
Wind speed	4.0 m/s (9.0 mph)	4.5 m/s (10.0 mph)	4.5 m/s (10.0 mph)	4.5 m/s (10.0 mph)	4.0 m/s (9.0 mph)	3.6 m/s (8.0 mph)
Temperature	28.3 C	28.3 C	29.4 C	30.0 C	30.6 C	30.0 C
Relative humidity	48	44	42	40	40	45
Dew point	16.1 C	15.0 C	15.0 C	15.0 C	15.6 C	16.7 C
Pressure	1021.4 mb	1021.4 mb	1020.7 mb	1020.4 mb	1020.1 mb	1019.4 mb
Ceiling	Few 4800 Ft	Few 5500 Ft	Few 5500 Ft	Few 5500 Ft	Few 6000 Ft	Scattered 5500 Ft

Table 3. Ground Weather for New Orleans, LA, Flight 14
11 September 2021

Time	1653	1753	1853
Wind direction	90 degrees E	90 degrees E	90 degrees E
Wind speed	4.5 m/s (10.0 mph)	5.4 m/s (12.0 mph)	3.6 m/s (8.0 mph)
Temperature	29.4 C	28.9 C	27.8 C
Relative humidity	46	49	56
Dew point	16.7 C	17.2 C	18.3 C

Pressure	1019.4 mb	1019.7 mb	1019.7 mb
Ceiling	Few 5500 Ft	Few 5000 Ft	Few 5000 Ft

Data Results

The following data is provided as a summary analysis. All data products are available for the Region to access on a shared FTP site. For a complete list of available products, see Appendix A. The data collected during these missions included a flight path summary, IRLS images, FTIR chemical identification and quantification, high resolution MSIC photos, and oblique photos.

Flight Paths

Wide, slow turns are required to be made in between runs to keep the instruments stable. The blue lines indicate the flight path while the green lines indicate the specific sections of the flight where chemical and oil data was collected and processed. The mission focus consisted of 8 survey areas positions between Port Fourchon, and New Orleans (figure 2) ASPECT completed 6 of the 8 grids as shown in Figures 3 and 4.



Figure 2. Survey Grid Cells

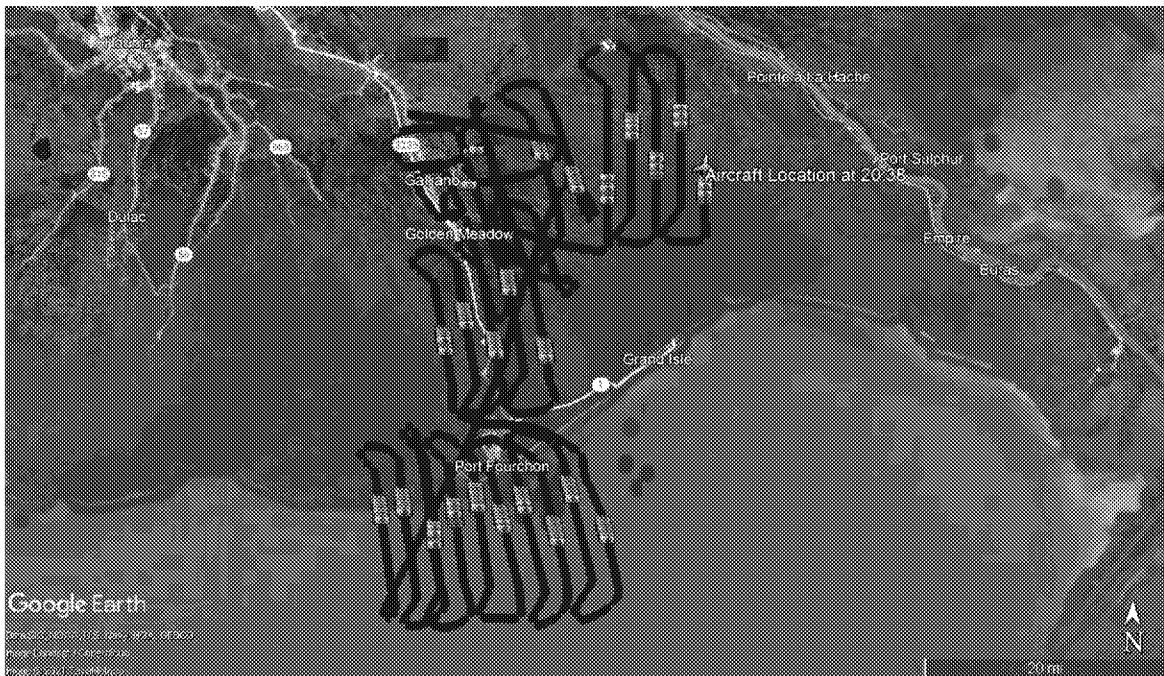


Figure 3. Oil Survey Flight Path, Flight 13, 11 September 2021

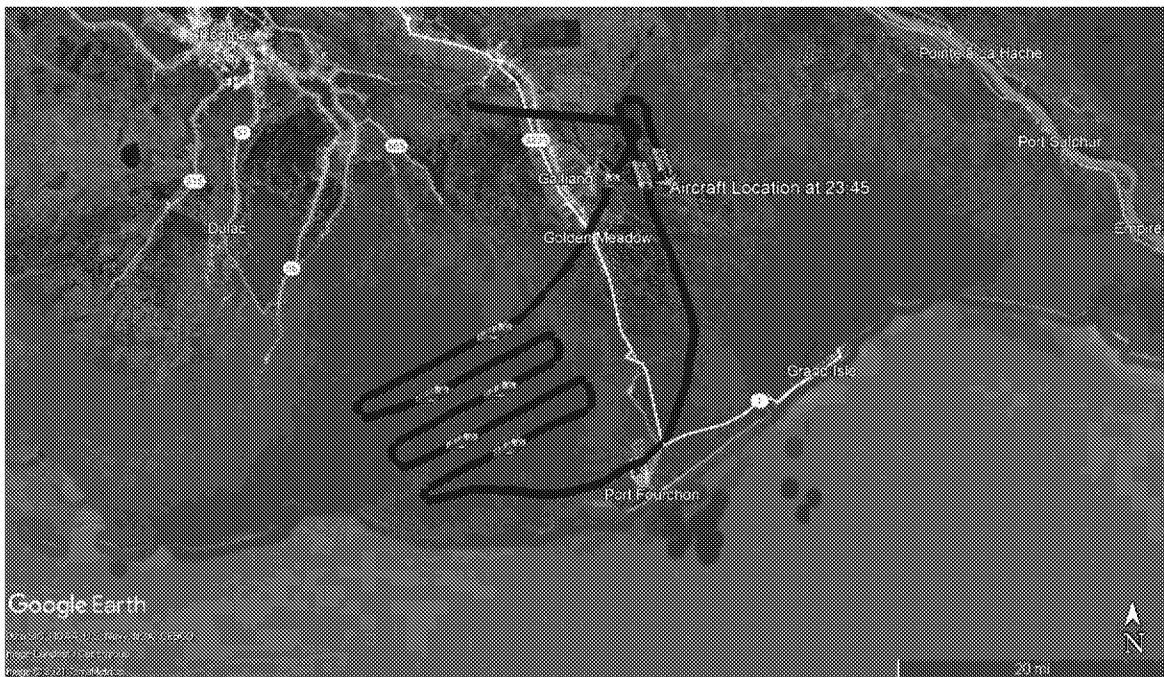


Figure 4. Oil Survey Flight Path, Flight 14, 11 September 2021

Line Scanner Data/Oil Results

A total of 32 data collection runs (2 tests and 30 active) were made over the target grid cells and an infrared line scanner image was generated for each collection run. In

addition to the stock IR analysis, flights 13 and 14 utilized two methods of oil detection analysis.

Oil detection with IR systems is routinely conducted by measuring the temperature difference and emissivity between the water and the oil. This differential is a result of differences between the water and oil emissivity and the subsequent solar heating and cooling of the oil. Oil on water in open the open can be detected using the difference in emissivity. Although simple thermal imaging methods can be used in this scenario, a multi-spectral pattern recognition method provides an improved detection with fewer false alarms. An unsupervised method called ISOData (similar to K-means) is employed to cluster data into groups such as sheen, light, or heavy oil on water in open water. Since this method is a pattern recognition approach, natural signatures such as floating vegetation, fresh/saltwater interfaces, and sea foam are not classified as oil. Although the IsoData method is very robust for open ocean conditions, the model does have limitations to thermal gradient changes. For areas in shallow/marsh environments an enhanced detection solution is employed for the wide changes observed for thermal changes to discriminate between signatures including vegetation and land features. To overcome the marsh environment complexities, ASPECT uses a neural network supervised classification method which requires a training set containing oil (called actives) and a set that does not contain oil (inactive). This data set includes examples that have high thermal gradients, land features, and vegetation. The subsequent classification and separation of these two sets of data provides a high degree of oil detection with low false alarm rates in the shallow environment.

Analysis of all data collection passes for the two missions showed the presence of oil (greater than a sheen) in four collection runs. Figure 5A and 5B shows an oil detection and photo image set collected on flight 13, pass 6 within Grid 6. Active oil presence is shown by the orange color with the density of the color being proportional to the quantity of oil on the water. A comparison of this image to the aerial images illustrates the contrast of the images and the fact that oil on water in photographic images is complicated by observation angle, sun angle, and the color of the water. The locations of the four oil detections is given in Figure 6. All oil detections were confined to Grids 6 and 7. No other significant detections were made in Grids 3,4,5, or 8. Grids 1 and 2 were not surveyed on the missions conducted on 11 September 2021.



Figure 5A. Oil Detection Image, Flight 13, Run 6, Grid 6, 11 September 2021

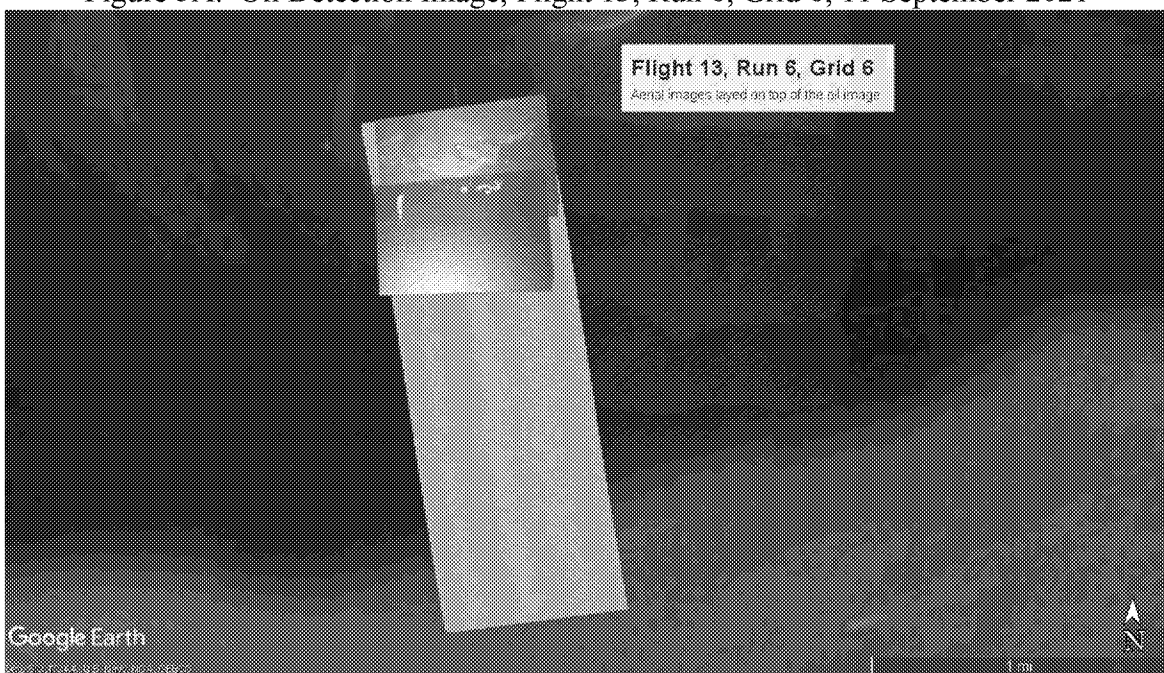


Figure 5B. Oil Photo Image, Flight 13, Run 6, Grid 6, 11 September 2021



Figure 6. Oil Detection Locations for Flight 13, 11 September 2021

FTIR Data Results

FTIR spectral data at a resolution of 16 wavenumbers was collected for each run. ASPECT uses an automated detection algorithm to permit compounds to be automatically analyzed while the aircraft is in flight. Seventy-six chemical compounds are included in the airborne algorithm library (the list is provided in Appendix B, Table 1). In addition, collected data was also manually quality checked against a collection of published library spectra for each chemical detected.

The only compound that ASPECT detected was isoprene on Flights 13. The location of the detection is given in Figure 7. No compounds were detected on Flight 14. Details of the monitoring results can be found in Table 4 and 5.

**Table 4. Chemical Results Summary
Oil Survey, Flight 13**

Pass	Date	Time (UTC)	Chemical	Max Concentration (ppm)
1	2021-09-11	16:13:28	Test	Test
2		16:38:36	ND	ND
3		17:11:11	ND	ND
4		17:19:19	ND	ND
5		17:43:46	ND	ND
6		17:49:20	ND	ND

7		17:58:48	ND	ND
8		18:16:58	ND	ND
9		18:23:18	ND	ND
10		18:33:29	ND	ND
11		18:40:20	ND	ND
12		18:49:38	ND	ND
13		18:57:46	ND	ND
14		19:07:30	ND	ND
15		19:17:19	ND	ND
16		19:24:56	ND	ND
17		19:32:14	ND	ND
18		19:39:57	Isoprene	0.249
19		19:49:07	ND	ND
20		20:00:14	ND	ND
21		20:10:13	ND	ND
22		20:19:17	ND	ND
23		20:27:54	ND	ND
24		20:36:42	ND	ND

**Table 5. Chemical Results Summary
Oil Survey, Flight 14**

Pass	Date	Time (UTC)	Chemical	Max Concentration (ppm)
1	2021-09-11	22:34:07	Test	Test
2		22:40:31	ND	ND
3		22:49:12	ND	ND
4		22:57:35	ND	ND
5		23:05:35	ND	ND
6		23:15:05	ND	ND
7		23:38:28	ND	ND
8		23:44:38	ND	ND



Figure 7. Isoprene Detection Location, Run 18, Flight 13.

Aerial Photography Results

A full set of high-resolution aerial digital photography were collected as part of each data collection pass. An aerial image of light sheen observed in grid 7 is shown in figure 8. Due to the focus of the mission, only a few oblique images were collected on Flight 13 (none on Flight 14). Figure 9 shows one of the oblique images showing a tank battery in the survey area.

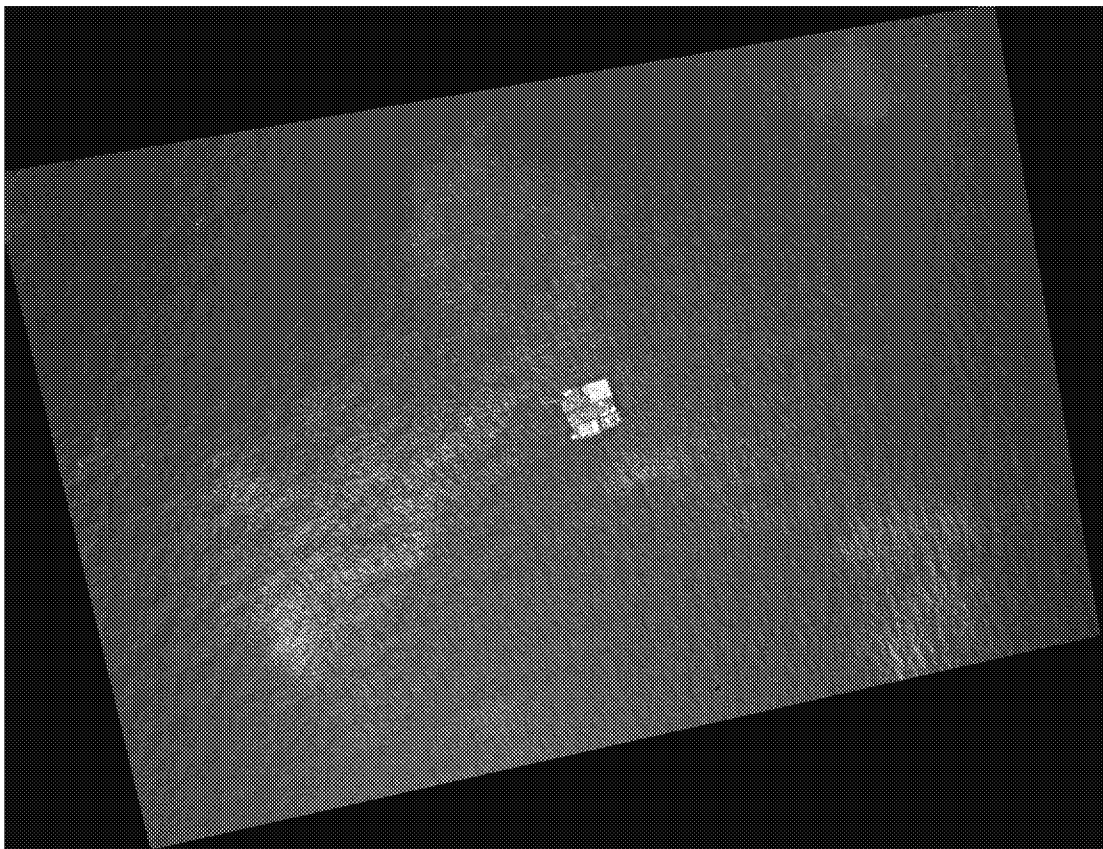


Figure 8. MSIC image of light sheen, Pass 12, Grid 7, Flight 13, 11 September 2021



Figure 9. Oblique photo of a tank battery, Flight 13, 11 September 2021

Conclusion

ASPECT conducted two oil survey missions on 11 September 2021 which included 32 data collection passes (2 test and 30 active). 8 grid areas were developed, and the system was able to survey grids 3 through 8 due to time on station. Oil was detected in four data collection passes in grids 6 and 7. Isoprene was detected on pass 18 at a low level of 0.249 ppm. No other compounds were detected.

Appendix A: File Names of Data Collected During Flight

Oil Survey, Flight 13, 11 September 2021

Run#	Time (UTC)	Altitude (MSL)	Velocity (knots)	MSIC Data Files	FTIR Data Files	IRLS Data Files	Gamma Files
1	16:13:28	2839	108	20210911161334708.jpg 20210911161341073.jpg 20210911161347422.jpg	20210911_161331_A.igm	2021_09_11_16_13_33_R_01 TA=24.9;TB=45.7;Gain=3	
2	16:38:36	2849	110	20210911163842654.jpg 20210911163849018.jpg 20210911163855367.jpg	20210911_163839_A.igm	2021_09_11_16_38_41_R_02 TA=28.4;TB=48.4;Gain=3	
3	17:11:11	2850	104	20210911171116389.jpg 20210911171123643.jpg 20210911171130007.jpg 20210911171136356.jpg 20210911171142705.jpg	20210911_171114_A.igm	2021_09_11_17_11_16_R_03 TA=21.9;TB=41.9;Gain=3	
4	17:19:19	2872	107	20210911171924815.jpg 20210911171932084.jpg 20210911171938434.jpg 20210911171944798.jpg 20210911171951147.jpg 20210911171957496.jpg 20210911172003861.jpg 20210911172010210.jpg	20210911_171922_A.igm 20210911_172001_A.igm	2021_09_11_17_19_24_R_04 TA=21.6;TB=41.5;Gain=3	
5	17:43:46	2886	117	20210911174352859.jpg 20210911174359208.jpg 20210911174405573.jpg 20210911174411922.jpg 20210911174418287.jpg 20210911174424636.jpg 20210911174430985.jpg 20210911174437350.jpg	20210911_174350_A.igm 20210911_174429_A.igm	2021_09_11_17_43_51_R_05 TA=21.9;TB=41.9;Gain=3	
6	17:49:20	2934	111	20210911174926055.jpg 20210911174932404.jpg 20210911174938753.jpg 20210911174946023.jpg 20210911174952372.jpg 20210911174958737.jpg 20210911175005086.jpg 20210911175011450.jpg	20210911_174923_A.igm 20210911_175003_A.igm	2021_09_11_17_49_25_R_06 TA=23.5;TB=42.7;Gain=3	
7	17:58:48	2857	110	20210911175854387.jpg 20210911175900736.jpg 20210911175907101.jpg 20210911175913450.jpg 20210911175919799.jpg 20210911175926164.jpg 20210911175932513.jpg 20210911175939782.jpg	20210911_175852_A.igm 20210911_175930_A.igm	2021_09_11_17_58_53_R_07 TA=23.5;TB=43.7;Gain=3	
8	18:16:58	2876	116	20210911181703851.jpg 20210911181710200.jpg 20210911181716549.jpg 20210911181722914.jpg 20210911181730168.jpg 20210911181736533.jpg 20210911181742882.jpg 20210911181749247.jpg	20210911_181701_A.igm 20210911_181740_A.igm	2021_09_11_18_17_03_R_08 TA=23.3;TB=43.2;Gain=3	
9	18:23:18	2867	110	20210911182324256.jpg 20210911182331510.jpg 20210911182337874.jpg 20210911182344223.jpg	20210911_182321_A.igm 20210911_182401_A.igm	2021_09_11_18_23_24_R_09 TA=23.1;TB=43.2;Gain=3	

				20210911182350573.jpg 20210911182356937.jpg 20210911182403287.jpg 20210911182409651.jpg 20210911182414191.jpg			
10	18:33:29	2871	115	20210911183335261.jpg 20210911183341610.jpg 20210911183347975.jpg 20210911183354324.jpg 20210911183400673.jpg 20210911183407038.jpg 20210911183413387.jpg 20210911183419752.jpg	20210911_183331_A.igm 20210911_183411_A.igm	2021_09_11_18_33_34_R_10 TA=23.0;TB=43.2;Gain=3	
11	18:40:20	2872	111	20210911184026525.jpg 20210911184032890.jpg 20210911184039239.jpg 20210911184045604.jpg 20210911184051953.jpg 20210911184059207.jpg 20210911184105572.jpg 20210911184111921.jpg	20210911_184023_A.igm 20210911_184102_A.igm	2021_09_11_18_40_26_R_11 TA=23.3;TB=43.2;Gain=3	
12	18:49:38	2833	109	20210911184944881.jpg 20210911184951246.jpg 20210911184957595.jpg 20210911185003945.jpg 20210911185010309.jpg 20210911185016659.jpg 20210911185023023.jpg 20210911185029373.jpg 20210911185035722.jpg	20210911_184942_A.igm 20210911_185021_A.igm	2021_09_11_18_49_44_R_12 TA=23.1;TB=43.2;Gain=3	
13	18:57:46	2854	108	20210911185752427.jpg 20210911185758776.jpg 20210911185805141.jpg 20210911185811490.jpg 20210911185818744.jpg 20210911185825109.jpg 20210911185831458.jpg 20210911185837823.jpg	20210911_185749_A.igm 20210911_185828_A.igm	2021_09_11_18_57_52_R_13 TA=23.4;TB=43.3;Gain=3	
14	19:07:30	2828	111	20210911190736196.jpg 20210911190742546.jpg 20210911190748902.jpg 20210911190755267.jpg 20210911190801616.jpg 20210911190807981.jpg 20210911190814330.jpg 20210911190820679.jpg	20210911_190733_A.igm 20210911_190812_A.igm	2021_09_11_19_07_35_R_14 TA=23.0;TB=43.0;Gain=3	
15	19:17:19	2847	111	20210911191725419.jpg 20210911191731768.jpg 20210911191738133.jpg 20210911191744482.jpg 20210911191750847.jpg 20210911191757196.jpg 20210911191803546.jpg 20210911191809910.jpg 20210911191813530.jpg	20210911_191722_A.igm 20210911_191802_A.igm	2021_09_11_19_17_24_R_15 TA=23.0;TB=43.0;Gain=3	
16	19:24:56	2844	108	20210911192502998.jpg 20210911192509351.jpg 20210911192515700.jpg 20210911192522059.jpg 20210911192528424.jpg 20210911192534773.jpg	20210911_192459_A.igm 20210911_192538_A.igm	2021_09_11_19_25_02_R_16 TA=22.0;TB=41.9;Gain=3	

				20210911192541122.jpg 20210911192547487.jpg			
17	19:32:14	2869	108	20210911193220600.jpg 20210911193227870.jpg 20210911193234219.jpg 20210911193240568.jpg 20210911193246933.jpg 20210911193253282.jpg 20210911193259647.jpg 20210911193305996.jpg	20210911_193218_A.igm 20210911_193258_A.igm	2021_09_11_19_32_20_R_17 TA=22.7;TB=42.7;Gain=3	
18	19:39:57	2864	105	20210911194003624.jpg 20210911194009989.jpg 20210911194016338.jpg 20210911194022687.jpg 20210911194029052.jpg 20210911194035401.jpg 20210911194041750.jpg 20210911194049020.jpg	20210911_194000_A.igm 20210911_194039_A.igm	2021_09_11_19_40_03_R_18 TA=22.0;TB=42.0;Gain=3	
19	19:49:07	2861	103	20210911194912896.jpg 20210911194919261.jpg 20210911194926515.jpg 20210911194932880.jpg 20210911194939229.jpg 20210911194945578.jpg 20210911194951943.jpg 20210911194958292.jpg	20210911_194911_A.igm 20210911_194949_A.igm	2021_09_11_19_49_13_R_19 TA=22.4;TB=42.4;Gain=3	
20	20:00:14	2838	108	20210911200020207.jpg 20210911200026556.jpg 20210911200032906.jpg 20210911200039270.jpg 20210911200045621.jpg 20210911200051970.jpg 20210911200058335.jpg 20210911200105589.jpg 20210911200111953.jpg	20210911_200017_A.igm 20210911_200057_A.igm	2021_09_11_20_00_20_R_20 TA=23.0;TB=43.0;Gain=3	
21	20:10:13	2831	107	20210911201019409.jpg 20210911201025758.jpg 20210911201032120.jpg 20210911201038469.jpg 20210911201044828.jpg 20210911201051193.jpg 20210911201057542.jpg 20210911201103891.jpg	20210911_201015_A.igm 20210911_201056_A.igm	2021_09_11_20_10_19_R_21 TA=22.6;TB=42.4;Gain=3	
22	20:19:17	2835	106	20210911201923231.jpg 20210911201929596.jpg 20210911201935945.jpg 20210911201942310.jpg 20210911201948659.jpg 20210911201955928.jpg 20210911202002278.jpg 20210911202008627.jpg	20210911_201920_A.igm 20210911_201959_A.igm	2021_09_11_20_19_23_R_22 TA=22.8;TB=42.8;Gain=3	
23	20:27:54	2829	104	20210911202759825.jpg 20210911202807094.jpg 20210911202813444.jpg 20210911202819808.jpg 20210911202826158.jpg 20210911202832507.jpg 20210911202838872.jpg 20210911202845221.jpg	20210911_202756_A.igm 20210911_202837_A.igm	2021_09_11_20_28_00_R_23 TA=22.8;TB=42.8;Gain=3	
24	20:36:42	2812	107	20210911203648221.jpg 20210911203654570.jpg	20210911_203644_A.igm 20210911_203725_A.igm	2021_09_11_20_36_49_R_24 TA=23.1;TB=43.1;Gain=3	

				20210911203701843.jpg 20210911203708192.jpg 20210911203714557.jpg 20210911203720906.jpg 20210911203727255.jpg 20210911203733620.jpg			
--	--	--	--	--	--	--	--

Oil Survey, Flight 14, 11 September 2021

Run#	Time (UTC)	Altitude (MSL)	Velocity (knots)	MSIC Data Files	FTIR Data Files	IRLS Data Files	Gamma Files
1	22:34:07	2822	109	20210911223413567.jpg 20210911223419932.jpg 20210911223426281.jpg	20210911_223409_A.igm	2021_09_11_22_34_11_R_01 TA=24.9;TB=44.8;Gain=3	
2	22:40:31	2854	116	20210911224037607.jpg 20210911224043971.jpg 20210911224050321.jpg 20210911224056670.jpg 20210911224103939.jpg 20210911224110289.jpg 20210911224116653.jpg 20210911224123010.jpg	20210911_224035_A.igm 20210911_224113_A.igm	2021_09_11_22_40_35_R_02 TA=21.4;TB=41.5;Gain=3	
3	22:49:12	2896	99	20210911224918738.jpg 20210911224925103.jpg 20210911224931452.jpg 20210911224937801.jpg 20210911224944166.jpg 20210911224950515.jpg 20210911224956878.jpg 20210911225003227.jpg 20210911225006855.jpg	20210911_224916_A.igm 20210911_224955_A.igm	2021_09_11_22_49_17_R_03 TA=21.8;TB=41.7;Gain=3	
4	22:57:35	2842	108	20210911225741713.jpg 20210911225748062.jpg 20210911225754427.jpg 20210911225800776.jpg 20210911225807141.jpg 20210911225813496.jpg 20210911225819845.jpg 20210911225826204.jpg	20210911_225738_A.igm 20210911_225817_A.igm	2021_09_11_22_57_39_R_04 TA=21.7;TB=41.7;Gain=3	
5	23:05:35	2891	97	20210911230541079.jpg 20210911230547444.jpg 20210911230553793.jpg 20210911230600152.jpg 20210911230606501.jpg 20210911230612860.jpg 20210911230619210.jpg 20210911230625574.jpg	20210911_230537_A.igm 20210911_230616_A.igm	2021_09_11_23_05_38_R_05 TA=21.0;TB=41.2;Gain=3	
6	23:15:05	2774	104	20210911231511236.jpg 20210911231517601.jpg 20210911231523950.jpg 20210911231530299.jpg 20210911231536664.jpg 20210911231543918.jpg 20210911231550283.jpg 20210911231556632.jpg	20210911_231508_A.igm 20210911_231547_A.igm	2021_09_11_23_15_09_R_06 TA=21.2;TB=41.4;Gain=3	

7	23:38:28	2571	105	20210911233834842.jpg 20210911233841200.jpg 20210911233847549.jpg 20210911233853910.jpg 20210911233900260.jpg 20210911233906618.jpg 20210911233913888.jpg 20210911233920237.jpg	20210911_233831_A.igm 20210911_233911_A.igm	2021_09_11_23_38_33_R_07 TA=22.1;TB=42.3;Gain=3	
8	23:44:38	2646	104	20210911234444365.jpg 20210911234450714.jpg 20210911234457064.jpg 20210911234503428.jpg 20210911234509778.jpg 20210911234516127.jpg 20210911234522492.jpg 20210911234528841.jpg	20210911_234441_A.igm 20210911_234521_A.igm	2021_09_11_23_44_42_R_08 TA=21.6;TB=41.7;Gain=3	

**Appendix B: Priority Sites Provided by EPA Region 6 & Louisiana Department of
Environmental Quality**

Facility_Name	Latitude	Longitude	Parish
Deltech LLC - Baton Rouge Facility	30.552892	-91.200536	East Baton Rouge
ExxonMobil Chemical Co - Baton Rouge Plastics Plant	30.551419	-91.175611	East Baton Rouge
ExxonMobil Baton Rouge Chemical Plant	30.484336	-91.169644	East Baton Rouge
Marathon Petroleum Co LP	30.068394	-90.596364	St. John the Baptist
Westlake Vinyls Co LP	30.209167	-91.017222	Ascension
Valero Refining - Meraux LLC - Meraux Refinery	29.930222	-89.944917	St. Bernard
Cornerstone Chemical Company	29.964722	-90.264722	Jefferson
Chalmette Refining LLC	29.937903	-89.969903	St. Bernard
ExxonMobil Chemical Company - Baton Rouge Chemicals North Plant	30.50465	-91.173219	East Baton Rouge
Equilon Enterprises LLC - Norco Refinery	29.995372	-90.410167	St. Charles
The Dow Chemical Company - Louisiana Operations	30.313927	-91.240586	Iberville
Rubicon LLC - Geismar Facility	30.20139	-91.01222	Ascension
BASF Corp - Geismar Site	30.18425	-91.002778	Ascension
Union Carbide Corp - St. Charles Plant	29.982289	-90.455622	St. Charles
Phillips 66 Co - Alliance Refinery	29.68406	-89.98145	Plaquemines
Axiall LLC - Plaquemine Facility	30.267167	-91.184258	Iberville
ExxonMobil Fuels & Lubricants Co - Baton Rouge Refinery	30.484392	-91.169444	East Baton Rouge
Equilon Enterprises LLC dba Shell Oil Products US - Convent Refinery	30.107684	-90.890796	St. James
Marathon Petroleum Company LP - Louisiana Refining Division - Garyville Refinery	30.061322	-90.593528	St. John the Baptist
BASF Corp - Zachary Site	29.547603	-90.523231	East Baton Rouge
Occidental Chemical Corporation - Geismar Facility	30.18819	-90.98188	Ascension
St Rose Refinery LLC - St Rose Refinery	29.950875	-90.328497	St. Charles
ExxonMobil Chemical Co - Baton Rouge Polyolefins Plant	30.56215	-91.20387	East Baton Rouge
Shell Chemical LP - Norco Chemical Plant West Site	30.004925	-90.422381	St. Charles
NOVA Chemicals Olefins LLC - Geismar Ethylene Plant	30.230619	-91.052884	Ascension
Roehm America LLC - MMA Plant	29.9575	-90.265833	Jefferson
Valero Refining - New Orleans LLC - St Charles Refinery	29.985781	-90.3955	St. Charles
Shell Chemical LP - Norco Chemical Plant - East Site	29.995556	-90.409722	St. Charles
BASF Corp - North Geismar Site	30.20594	-90.99195	Ascension
Stolthaven New Orleans, LLC - Braithwaite Facility	29.870919	-89.949339	Plaquemines
Shintech Louisiana LLC - Shintech Plaquemine Plant	30.273611	-91.173333	Iberville
Denka Performance Elastomer LLC	30.053928	-90.524792	St. John the Baptist

Formosa Plastics Corp Louisiana	30.501722	-91.185944	East Baton Rouge
DuPont Specialty Products USA LLC - Pontchartrain Site	30.05388	-90.52472	St. John the Baptist
Occidental Chemical Corp - Taft Plant	29.987222	-90.454722	St. Charles
Syngenta Crop Protection LLC - St Gabriel Plant	30.246728	-91.103508	Iberville
Mosaic Fertilizer LLC - Faustina Plant	30.083914	-90.91345	St. James
Mosaic Fertilizer LLC - Uncle Sam Plant	30.037222	-90.8275	St. James
LBC Baton Rouge LLC - Sunshine Terminal	30.294444	-91.148333	Iberville
Occidental Chemical Corporation - Convent Facility	30.055885	-90.830594	St. James
TOTAL Petrochemicals & Refining USA Inc - Carville Polystyrene Plant	30.229786	-91.073631	Iberville
Targa Midstream Services LLC	29.237034	-89.384977	Plaquemines
EnLink LIG Liquids LLC - Plaquemine Gas Processing Plant	30.236389	-91.241389	Iberville
EnLink LIG Liquids LLC - Gibson Gas Processing Plant	29.643056	-90.961944	Terrebonne
NuStar Logistics LP - St James Terminal	30.030065	-90.843463	St. James
Enterprise Gas Processing LLC - Norco Fractionation Plant	30.015411	-90.402958	St. Charles
Lone Star NGL Refinery Services LLC - Geismar Fractionation Plant	30.218889	-91.035833	Ascension
INEOS Oxide - A Division of INEOS Americas LLC	30.313889	-91.240278	Iberville
Discovery Producer Services LLC - Discovery Paradis Fractionation Plant	29.858889	-90.453333	St. Charles
Plains Marketing LP - St James Terminal	30.004341	-90.848449	St. James
Methanex USA Services LLC - Geismar Methanol Plant	30.206667	-91.020833	Ascension
Dyno Nobel LA Ammonia LLC - Ammonia Production Facility	29.964789	-90.264625	Jefferson
Kinder Morgan Liquids Terminals LLC - Geismar Methanol Terminal	30.205389	-91.023792	Ascension
South LA Methanol LP - St James Methanol Plant	30.039917	-90.863819	St. James
YCI Methanol Plant	29.97481	-90.86775	St. James
IGP Methanol LLC - Gulf Coast Methanol Complex	29.625453	-89.926611	Plaquemines
KMe St James Holdings LLC - Methanol Terminal	29.990919	-90.841239	St. James
Kemira Chemicals Inc	29.964722	-90.264722	Jefferson
PHILLIPS 66 PIPELINE LLC	29.923889	-90.482498	St. Charles
CF INDUSTRIES	30.08328	-90.957665	Ascension

Appendix C: ASPECT Systems

The US EPA ASPECT system collects airborne infrared (IR) images and chemical screening data from a safe distance over the site (about 3,000 ft AGL). The system consists of an airborne high-speed Fourier Transform Infra-Red (FTIR) spectrometer coupled with a wide-area IR Line Scanner (IRLS). The ASPECT IR systems can detect chemical compounds in both the 8-to-12-micron (800 to 1200 cm^{-1}) and 3 to 5 micron (2000 to 3200 cm^{-1}) regions. List of chemicals and detection limits are listed in Table 1. The 8 to 12 micron region is typically known as the atmospheric window region since the band is reasonably void of water and carbon dioxide influence. Spectrally, this region is used to detect carbon - non-carbon bonded compounds. The 3 to 5 micron region is also free of water and carbon dioxide but typically does not have sufficient energy for use. This band does show use in high-energy environments such as fires. The carbon - hydrogen stretch is very common in this region.

An Imperx mapping camera (29 mega pixels; mapping focal plane array) is concurrently operated as part of all chemical collections. These images are often digitally processed in lower resolution, so they can be transmitted via satellite communication. All imagery is geo-rectified using both aircraft attitude correction (pitch, yaw, and roll) and GPS positional information. Imagery can be processed while in flight or approximately 600 frames per hour can be processed once the data are downloaded from the aircraft. The high-resolution images (>20 MB each) are pulled from the ASPECT after the sortie and are available later.

All aerial photographic images collected by the ASPECT system are ortho-rectified and geospatially validated by the scientific reach back team. In general, this consists of conducting geo-registration using a USGS Digital Elevation Model (DEM) which promotes superior pixel computation and lessens topographic distortion. The image is checked by the team (using a Google Earth base map) for proper location and rotation.

Airborne radiological measurements are conducted using three fully integrated multi-crystal sodium iodide (NaI) RSX4 gamma ray spectrometers. Each RSX4 spectrometer contains four 4"x2"x16" doped NaI crystals each having an independent photomultiplier/spectrometer assembly. One RSX unit is configured with an additional upward NaI crystal utilized to provide real-time cosmic ray correction. Count and energy data from each crystal and pack is combined using a self-calibrating signal processor to generate a virtual detector output. All radiological spectrometer "packs" are further combined using a signal console controlled by the on-board central computer in the aircraft. Altitude correction data is provided by a radar altimeter with internal GPS systems within the packs serving as a backup. It should be noted that no radiological measurements were conducted on this mission.

Data is processed using automated algorithms onboard the aircraft with preliminary results being sent using a satellite system to the ASPECT scientific reach back team for QA/QC analysis. Upon landing, preliminary data results are examined and validated by the

scientific reach back team.

Table 1. ASPECT Automated Compounds

This table contains ASPECT's library of automated compounds.

Detection limits are for each chemical is found in parenthesis in units of parts per million (ppm)

Acetic Acid (2.0)	Cumene (23.1)	Isoprene (6.5)	Phosphine (8.3)
Acetone (5.6)	Diborane (5.0)	Isopropanol (8.5)	Phosphorus Oxychloride (2.0)
Acrolein (8.8)	1,1-Dichloroethene (3.7)	Isopropyl Acetate (0.7)	Propyl Acetate (0.7)
Acrylonitrile (12.5)	Dichloromethane (6.0)	MAPP (3.7)	Propylene (3.7)
Acrylic Acid (3.3)	Dichlorodifluoromethane (0.7)	Methyl Acetate (1.0)	Propylene Oxide (6.8)
Allyl Alcohol (5.3)	1,1-Difluoroethane (0.8)	Methyl Acrylate (1.0)	Silicon Tetrafluoride (0.2)
Ammonia (2.0)	Difluoromethane (0.8)	Methyl Ethyl Ketone (7.5)	Sulfur Dioxide (15)
Arsine (18.7)	Ethanol (6.3)	Methanol (5.4)	Sulfur Hexafluoride (0.07)
Bis-Chloroethyl Ether (1.7)	Ethyl Acetate (0.8)	Methylbromide (60)	Sulfur Mustard (6.0)
Boron Tribromide (0.2)	Ethyl Acrylate (0.8)	Methylene Chloride (1.1)	Sulfuryl Fluoride (1.5)
Boron Trifluoride (5.6)	Ethyl Formate (1.0)	Methyl Methacrylate (3.0)	Tetrachloroethylene (10)
1,3-Butadiene (5.0)	Ethylene (5.0)	MTEB (3.8)	1,1,1-Trichloroethane (1.9)
1-Butene (12.0)	Formic Acid (5.0)	Naphthalene (3.8)	Trichloroethylene (2.7)
2-Butene (18.8)	Freon 134a (0.8)	n-Butyl Acetate (3.8)	Trichloromethane (0.7)
Carbon Tetrachloride (0.2)	GA (Tabun) (0.7)	n-Butyl Alcohol (7.9)	Triethylamine (6.2)
Carbonyl Fluoride (0.8)	GB (Sarin) (0.5)	Nitric Acid (5.0)	Triethylphosphate (0.3)
Carbon Tetrafluoride (0.1)	Germane (1.5)	Nitrogen Mustard (2.5)	Trimethylamine (9.3)
Chlorodifluoromethane (0.6)	Hexafluoroacetone (0.4)	Nitrogen Trifluoride (0.7)	Trimethyl Phosphite (0.4)
Chloromethane (12)	Isobutylene (15)	Phosgene (0.5)	Vinyl Acetate (0.6)

Message

From: Turville Rick [Rick.Turville@kalmancoinc.com]
Sent: 9/12/2021 3:43:35 PM
To: Taylor, Jillianne [Taylor.Jillianne@epa.gov]
CC: mark [mark@spectralsystemsglobal.com]; robert.kroutil@kalmancoinc.com
Subject: FW: Revised ASPECT report for 11 Sept 2021
Attachments: ASPECT Summary - Hurricane Ida 11 September 2021 v2.docx

Jill,

Please use this version. Bob noted an additional oil detection in flight 14 which as been included in this version of the report.

R/ Rick

Airborne Spectral Photometric Environmental Collection Technology

ASPECT Air Quality Survey Baton Rouge, LA. September 11, 2021



ASPECT Mission Supporting:

Eric Delgado
On-Scene Coordinator
Delgado.Eric@epa.gov

Initial Mission Request

Brian Fontenot
Louisiana Department of Environmental
Quality

ASPECT TEAM

Jill Taylor
Chemical/Photometric Lead
Taylor.Jillianne@EPA.gov
214-406-9896

Tony Honnellio
Radiological Lead (Detail)
Honnellio.Anthony@EPA.gov
617 947-4414

Ed Argenta
CBRN CMAD FOB Branch Chief
Argenta.Edward@EPA.gov
202-843-4511

Table of Contents

[TOC \o "1-3" \h \z \u]

Acronyms and Abbreviations

Alt	Altitude (in feet)
AGL	Above Ground Level
cm	centimeter
CDT	Central Daylight Time
DEM	Digital Elevation Model
ESF-10	Emergency Support Function #10 – Oil and Hazardous Materials Response
FEMA	Federal Emergency Management Agency
ft	feet
FTIR	Fourier Transform Infrared Spectrometer
FTP	File Transfer Protocol
igm	Spectral data format based on grams format
IR	Infrared
IRLS	Infrared Line Scanner
jpg	JPEG image format
Kts	Knots
LDEQ	Louisiana Department of Environmental Quality
mph	miles per hour
m/s	meters per second
MSIC	Digital photography file from the Imperx mapping camera
MSL	Mean Sea Level Altitude (in feet)
PAN	peroxyacetyl nitrate
Ppm	parts per million
RMP	Risk Management Plan

UTC

Universal Time Coordinated

Executive Summary

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On September 2nd, 2021, the State of Louisiana requested ESF-10 assistance through FEMA and Region 6 asked for the ASPECT plane to be deployed in support of the response to Hurricane Ida. The state wanted assistance monitoring facility emissions in the industrial area between Baton Rouge and New Orleans, where flaring is resulting in the visible emission of black smoke.

ASPECT was tasked to perform remote chemical sensing over target properties to screen for airborne chemicals and take high-resolution photos to provide situational awareness. Potential areas identified for monitoring included: East Baton Rouge, Ascension, Iberville, St. James, St. John, St. Charles, Jefferson, and Orleans. The system conducted one flight mission on 2 September 2021 including air monitoring survey collections over the target area with favorable weather conditions for all passes. Although two black plumes were visible over one of the sites, no major emissions were detected with the FTIR.

A continuation of the overall Baton Rouge facility survey was conducted on 3 September 2021. Two data collection flights were conducted which bracketed a Presidential temporary flight restriction not allowing any flight activity. A total of 12 active data collection passes were made covering 8 facilities with no chemical plumes or compounds being detected. Other than flares and isolated steam plumes, little process activity was noted in the data.

Flight 5 and 6 were conducted as part of survey operations conducted on 4 September 2021. A total of 17 facilities were surveyed. Ammonia was detected and confirmed at a maximum concentration of approximately 14 ppm in addition to ozone and peroxyacetyl nitrate. Analysis of IR imagery indicated that some facilities are showing hot process units.

ASPECT conducted two data collection missions on 5 September 2021 with the focus being facilities in St. Bernard, Terrebonne, St. Charles, and St. James areas. A total of 32 active data collection passes were made covering 21 facilities. Imagery collected within impact areas of the storm showed some oil sheen and releases to secondary containment. No compounds were detected on either mission.

Two data collection missions were conducted by ASPECT on 7 September 2021 with the primary focus to collect additional data over target surveyed on 5 September 2021 (St.

Bernard, Terrebonne, St. Charles, and St. James areas). A total of 16 data collection passes (2 test and 14 active) were made over about half of the target list. Weather conditions complicated the mission with numerous convective cells and low clouds in the area. No compounds were detected on either flight. conducted two data collection missions on 5 September 2021 with the focus being facilities in St. Bernard, Terrebonne, St. Charles, and St. James areas.

ASPECT conducted two missions on 8 September 2021 with the primary objective to complete the mission of collecting additional data at facilities assigned on 7 September. Weather conditions over the target areas within St. Bernard, Terrebonne, St. Charles, and St. James parishes was marginal due to clouds and convective activity. A total of 21 data collection passes (2 test and 19 active) were required to complete the mission with no detections observed.

ASPECT conducted two oil survey missions on 11 September 2021 which included 32 data collection passes (2 test and 30 active). 8 grid areas were developed, and the system was able to survey grids 3 through 8 due to time on station. Oil was detected in four data collection passes in grids 6 and 7. Isoprene was detected on pass 18 at a low level of 0.249 ppm. No other compounds were detected.

ASPECT Air Quality Survey

Hurricane IDA

Baton Rouge, LA

September 11, 2021

Background and Operational Overview

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On 2 September 2021, ASPECT was tasked to conduct a wide area air quality screening level assessment of areas populated with Risk Management Plan (RMP) sites and petrochemical facilities using the ASPECT system for detections of any airborne contaminants from ASPECT's 76 chemical detection library in the areas affected by Ida. The Region wanted to know if any detections were found, the location of the detection, and the concentration detected. Sites including Marathon Petroleum Company, Shell Norco Facility, and Phillips 66 pipeline site were surveyed. There were no chemical detections at the sites surveyed. Extremely slow satellite transmission speeds (possibly due to high bandwidth use by other first responders) resulted in long delays in data collection. Some chemical photos were pulled down during flight, with the majority needing to be pulled down with a more high-speed internet connection on the ground.

On 3 September 2021 ASPECT was tasked with a continuation of the general Baton Rouge area survey and conducted two flights. 8 locations in the Baton Rouge area were surveyed as part of two flights. A total of 12 active data collection passes were made covering 8 facilities with no chemical plumes or compounds being detected. Other than flares and isolated steam plumes, little process activity was noted in the data.

Two data collection flights were conducted on 4 September 2021 focusing on facilities south of Baton Rouge. A total of 29 active data collection passes were made covering 17 facilities. Analysis of IR imagery indicated that some facilities are showing hot process units. Ammonia was detected and confirmed at a maximum concentration of approximately 14 ppm.

ASPECT conducted two data collection missions on 5 September 2021 with the focus being facilities in St. Bernard, Terrebonne, St. Charles, and St. James areas. A total of 32 active data collection passes were made covering 21 facilities. Imagery collected within

impact areas of the storm showed some oil sheen and releases to secondary containment. No compounds were detected on either mission.

Due to poor weather, ASPECT did not conduct any flight activities on 6 September 2021. ASPECT was tasked with two missions on 7 September consisting largely of revisiting facilities surveyed on 6 September 2021 for the purpose of collecting additional data.

ASPECT conducted two missions on 8 September 2021 with the primary objective to complete the mission of collecting additional data at facilities assigned on 7 September. Weather conditions over the target areas within St. Bernard, Terrebonne, St. Charles, and St. James parishes was marginal due to clouds and convective activity. A total of 21 data collection passes (2 test and 19 active) were required to complete the mission with no detections observed.

ASPECT did not conduct missions on 9 September 2021 or 10 September 2021 but was tasked with an oil detection mission on 11 September 2021. The Louisiana Department of Environmental Quality (LDEQ) provided several prioritized target areas located in an area encompassing Port Fourchon and north toward New Orleans. Figure 1 shows the target survey areas marked in red.

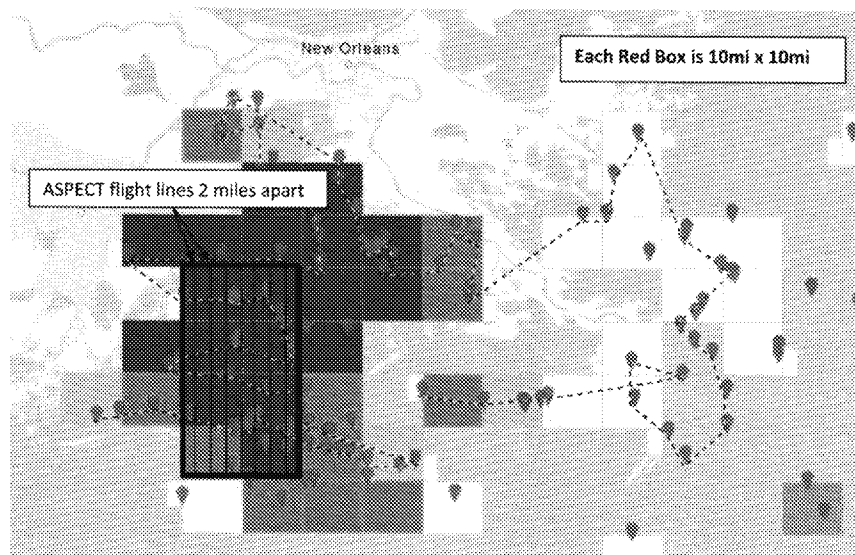


Figure 1. LDEQ Oil Survey Area, 8 September 2021

General Mission Objectives

Once granted access to fly over the sites, the following general mission objectives were employed in conducting data collection with ASPECT:

1. To capture an overall, situational awareness of the incident using aerial photography with:

-

- Oblique camera—photos taken by hand from the view/position of the co-pilot, and
 - MSIC photos—advanced camera mounted underneath the plane for a top-down view of the designated sites.
2. To qualitatively locate and characterize any the visible and non-visible components of a plume, oil on water, as well as any areas on fire:
 - Using the Infrared Line Scanner (IRLS)
 3. To screen for the presence and location of specific chemicals within ASPECT's automated chemical detection library:
 - Using the Fourier Transform Infrared (FTIR) Spectrometer

Flight Conditions and Status

Weather and Site Conditions

Prior to each flight, an updated status of the current and forecasted weather, site conditions and any potential flight obstacles including radio towers impacting safety is assessed by the crew. A summary of the ground weather conditions during the missions can be found in Table 2 and 3.

Table 2. Ground Weather for New Orleans, LA, Flight 13
11 September 2021

Time	1053	1153	1253	1353	1453	1553
Wind direction	45 degrees NE	45 degrees NE	22.5 degrees NNE	45 degrees NE	67.5 degrees ENE	90 degrees E
Wind speed	4.0 m/s (9.0 mph)	4.5 m/s (10.0 mph)	4.5 m/s (10.0 mph)	4.5 m/s (10.0 mph)	4.0 m/s (9.0 mph)	3.6 m/s (8.0 mph)
Temperature	28.3 C	28.3 C	29.4 C	30.0 C	30.6 C	30.0 C
Relative humidity	48	44	42	40	40	45
Dew point	16.1 C	15.0 C	15.0 C	15.0 C	15.6 C	16.7 C
Pressure	1021.4 mb	1021.4 mb	1020.7 mb	1020.4 mb	1020.1 mb	1019.4 mb
Ceiling	Few 4800 Ft	Few 5500 Ft	Few 5500 Ft	Few 5500 Ft	Few 6000 Ft	Scattered 5500 Ft

Table 3. Ground Weather for New Orleans, LA, Flight 14
11 September 2021

Time	1653	1753	1853
Wind direction	90 degrees E	90 degrees E	90 degrees E
Wind speed	4.5 m/s (10.0 mph)	5.4 m/s (12.0 mph)	3.6 m/s (8.0 mph)
Temperature	29.4 C	28.9 C	27.8 C
Relative humidity	46	49	56
Dew point	16.7 C	17.2 C	18.3 C

Pressure	1019.4 mb	1019.7 mb	1019.7 mb
Ceiling	Few 5500 Ft	Few 5000 Ft	Few 5000 Ft

Data Results

The following data is provided as a summary analysis. All data products are available for the Region to access on a shared FTP site. For a complete list of available products, see Appendix A. The data collected during these missions included a flight path summary, IRLS images, FTIR chemical identification and quantification, high resolution MSIC photos, and oblique photos.

Flight Paths

Wide, slow turns are required to be made in between runs to keep the instruments stable. The blue lines indicate the flight path while the green lines indicate the specific sections of the flight where chemical and oil data was collected and processed. The mission focus consisted of 8 survey areas positions between Port Fourchon, and New Orleans (figure 2) ASPECT completed 6 of the 8 grids as shown in Figures 3 and 4.



Figure 2. Survey Grid Cells



Figure 3. Oil Survey Flight Path, Flight 13, 11 September 2021

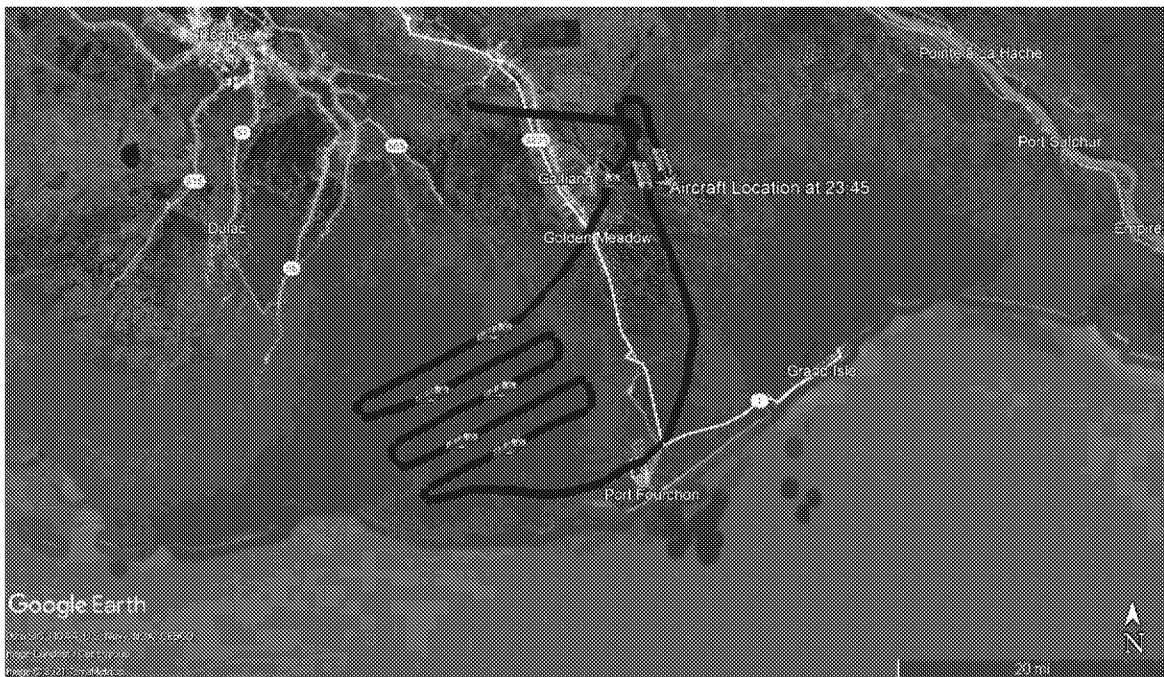


Figure 4. Oil Survey Flight Path, Flight 14, 11 September 2021

Line Scanner Data/Oil Results

A total of 32 data collection runs (2 tests and 30 active) were made over the target grid cells and an infrared line scanner image was generated for each collection run. In

addition to the stock IR analysis, flights 13 and 14 utilized two methods of oil detection analysis.

Oil detection with IR systems is routinely conducted by measuring the temperature difference and emissivity between the water and the oil. This differential is a result of differences between the water and oil emissivity and the subsequent solar heating and cooling of the oil. Oil on water in open the open can be detected using the difference in emissivity. Although simple thermal imaging methods can be used in this scenario, a multi-spectral pattern recognition method provides an improved detection with fewer false alarms. An unsupervised method called ISOData (similar to K-means) is employed to cluster data into groups such as sheen, light, or heavy oil on water in open water. Since this method is a pattern recognition approach, natural signatures such as floating vegetation, fresh/saltwater interfaces, and sea foam are not classified as oil. Although the IsoData method is very robust for open ocean conditions, the model does have limitations to thermal gradient changes. For areas in shallow/marsh environments an enhanced detection solution is employed for the wide changes observed for thermal changes to discriminate between signatures including vegetation and land features. To overcome the marsh environment complexities, ASPECT uses a neural network supervised classification method which requires a training set containing oil (called actives) and a set that does not contain oil (inactive). This data set includes examples that have high thermal gradients, land features, and vegetation. The subsequent classification and separation of these two sets of data provides a high degree of oil detection with low false alarm rates in the shallow environment.

Analysis of all data collection passes for the two missions showed the presence of oil (greater than a sheen) in four collection runs. Figure 5A and 5B shows an oil detection and photo image set collected on flight 13, pass 6 within Grid 6. Active oil presence is shown by the orange color with the density of the color being proportional to the quantity of oil on the water. A comparison of this image to the aerial images illustrates the contrast of the images and the fact that oil on water in photographic images is complicated by observation angle, sun angle, and the color of the water. Oil was likewise detected in Grid 5 conducted on flight 14. The locations (image positions) of all oil detections are given in Figure 6. No other significant oil detections were made in Grids 3,4, or 8. Grids 1 and 2 were not surveyed on the missions conducted on 11 September 2021.



Figure 5A. Oil Detection Image, Flight 13, Run 6, Grid 6, 11 September 2021

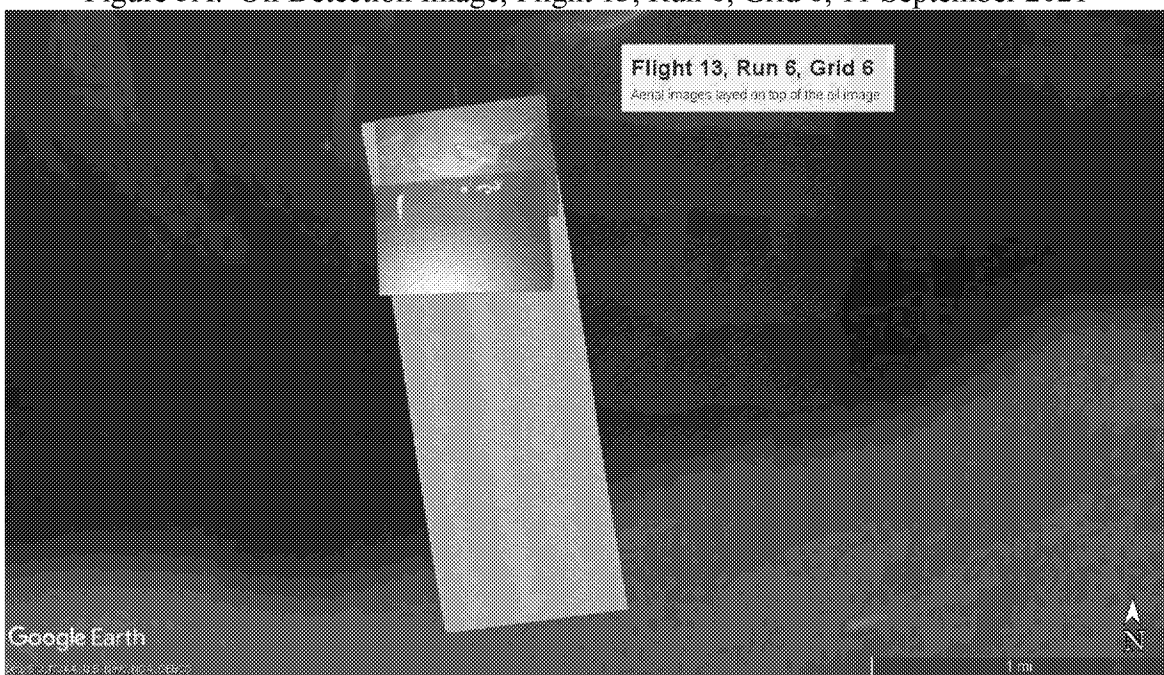


Figure 5B. Oil Photo Image, Flight 13, Run 6, Grid 6, 11 September 2021



Figure 6. Oil Detection Locations for Flight 13, 11 September 2021

FTIR Data Results

FTIR spectral data at a resolution of 16 wavenumbers was collected for each run. ASPECT uses an automated detection algorithm to permit compounds to be automatically analyzed while the aircraft is in flight. Seventy-six chemical compounds are included in the airborne algorithm library (the list is provided in Appendix B, Table 1). In addition, collected data was also manually quality checked against a collection of published library spectra for each chemical detected.

The only compound that ASTECT detected was isoprene on Flights 13. The location of the detection is given in Figure 7. No compounds were detected on Flight 14. Details of the monitoring results can be found in Table 4 and 5.

Table 4. Chemical Results Summary
Oil Survey, Flight 13

Pass	Date	Time (UTC)	Chemical	Max Concentration (ppm)
1	2021-09-11	16:13:28	Test	Test
2		16:38:36	ND	ND
3		17:11:11	ND	ND
4		17:19:19	ND	ND
5		17:43:46	ND	ND
6		17:49:20	ND	ND

7		17:58:48	ND	ND
8		18:16:58	ND	ND
9		18:23:18	ND	ND
10		18:33:29	ND	ND
11		18:40:20	ND	ND
12		18:49:38	ND	ND
13		18:57:46	ND	ND
14		19:07:30	ND	ND
15		19:17:19	ND	ND
16		19:24:56	ND	ND
17		19:32:14	ND	ND
18		19:39:57	Isoprene	0.249
19		19:49:07	ND	ND
20		20:00:14	ND	ND
21		20:10:13	ND	ND
22		20:19:17	ND	ND
23		20:27:54	ND	ND
24		20:36:42	ND	ND

**Table 5. Chemical Results Summary
Oil Survey, Flight 14**

Pass	Date	Time (UTC)	Chemical	Max Concentration (ppm)
1	2021-09-11	22:34:07	Test	Test
2		22:40:31	ND	ND
3		22:49:12	ND	ND
4		22:57:35	ND	ND
5		23:05:35	ND	ND
6		23:15:05	ND	ND
7		23:38:28	ND	ND
8		23:44:38	ND	ND



Figure 7. Isoprene Detection Location, Run 18, Flight 13.

Aerial Photography Results

A full set of high-resolution aerial digital photography were collected as part of each data collection pass. An aerial image of light sheen observed in grid 7 is shown in figure 8. Due to the focus of the mission, only a few oblique images were collected on Flight 13 (none on Flight 14). Figure 9 shows one of the oblique images showing a tank battery in the survey area.

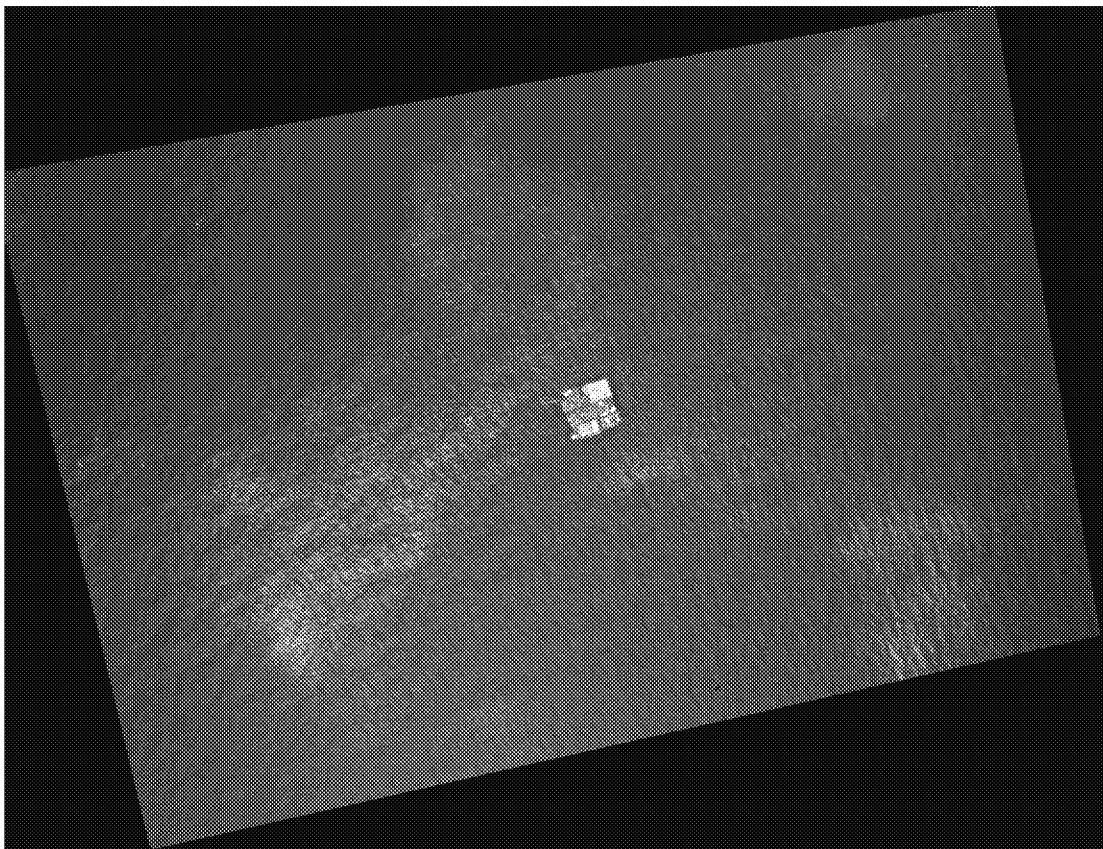


Figure 8. MSIC image of light sheen, Pass 12, Grid 7, Flight 13, 11 September 2021



Figure 9. Oblique photo of a tank battery, Flight 13, 11 September 2021

Conclusion

ASPECT conducted two oil survey missions on 11 September 2021 which included 32 data collection passes (2 test and 30 active). 8 grid areas were developed, and the system was able to survey grids 3 through 8 due to time on station. Oil was detected in four data collection passes in grids 6 and 7. Isoprene was detected on pass 18 at a low level of 0.249 ppm. No other compounds were detected.

Appendix A: File Names of Data Collected During Flight

Oil Survey, Flight 13, 11 September 2021

Run#	Time (UTC)	Altitude (MSL)	Velocity (knots)	MSIC Data Files	FTIR Data Files	IRLS Data Files	Gamma Files
1	16:13:28	2839	108	20210911161334708.jpg 20210911161341073.jpg 20210911161347422.jpg	20210911_161331_A.igm	2021_09_11_16_13_33_R_01 TA=24.9;TB=45.7;Gain=3	
2	16:38:36	2849	110	20210911163842654.jpg 20210911163849018.jpg 20210911163855367.jpg	20210911_163839_A.igm	2021_09_11_16_38_41_R_02 TA=28.4;TB=48.4;Gain=3	
3	17:11:11	2850	104	20210911171116389.jpg 20210911171123643.jpg 20210911171130007.jpg 20210911171136356.jpg 20210911171142705.jpg	20210911_171114_A.igm	2021_09_11_17_11_16_R_03 TA=21.9;TB=41.9;Gain=3	
4	17:19:19	2872	107	20210911171924815.jpg 20210911171932084.jpg 20210911171938434.jpg 20210911171944798.jpg 20210911171951147.jpg 20210911171957496.jpg 20210911172003861.jpg 20210911172010210.jpg	20210911_171922_A.igm 20210911_172001_A.igm	2021_09_11_17_19_24_R_04 TA=21.6;TB=41.5;Gain=3	
5	17:43:46	2886	117	20210911174352859.jpg 20210911174359208.jpg 20210911174405573.jpg 20210911174411922.jpg 20210911174418287.jpg 20210911174424636.jpg 20210911174430985.jpg 20210911174437350.jpg	20210911_174350_A.igm 20210911_174429_A.igm	2021_09_11_17_43_51_R_05 TA=21.9;TB=41.9;Gain=3	
6	17:49:20	2934	111	20210911174926055.jpg 20210911174932404.jpg 20210911174938753.jpg 20210911174946023.jpg 20210911174952372.jpg 20210911174958737.jpg 20210911175005086.jpg 20210911175011450.jpg	20210911_174923_A.igm 20210911_175003_A.igm	2021_09_11_17_49_25_R_06 TA=23.5;TB=42.7;Gain=3	
7	17:58:48	2857	110	20210911175854387.jpg 20210911175900736.jpg 20210911175907101.jpg 20210911175913450.jpg 20210911175919799.jpg 20210911175926164.jpg 20210911175932513.jpg 20210911175939782.jpg	20210911_175852_A.igm 20210911_175930_A.igm	2021_09_11_17_58_53_R_07 TA=23.5;TB=43.7;Gain=3	
8	18:16:58	2876	116	20210911181703851.jpg 20210911181710200.jpg 20210911181716549.jpg 20210911181722914.jpg 20210911181730168.jpg 20210911181736533.jpg 20210911181742882.jpg 20210911181749247.jpg	20210911_181701_A.igm 20210911_181740_A.igm	2021_09_11_18_17_03_R_08 TA=23.3;TB=43.2;Gain=3	
9	18:23:18	2867	110	20210911182324256.jpg 20210911182331510.jpg 20210911182337874.jpg 20210911182344223.jpg	20210911_182321_A.igm 20210911_182401_A.igm	2021_09_11_18_23_24_R_09 TA=23.1;TB=43.2;Gain=3	

				20210911182350573.jpg 20210911182356937.jpg 20210911182403287.jpg 20210911182409651.jpg 20210911182414191.jpg			
10	18:33:29	2871	115	20210911183335261.jpg 20210911183341610.jpg 20210911183347975.jpg 20210911183354324.jpg 20210911183400673.jpg 20210911183407038.jpg 20210911183413387.jpg 20210911183419752.jpg	20210911_183331_A.igm 20210911_183411_A.igm	2021_09_11_18_33_34_R_10 TA=23.0;TB=43.2;Gain=3	
11	18:40:20	2872	111	20210911184026525.jpg 20210911184032890.jpg 20210911184039239.jpg 20210911184045604.jpg 20210911184051953.jpg 20210911184059207.jpg 20210911184105572.jpg 20210911184111921.jpg	20210911_184023_A.igm 20210911_184102_A.igm	2021_09_11_18_40_26_R_11 TA=23.3;TB=43.2;Gain=3	
12	18:49:38	2833	109	20210911184944881.jpg 20210911184951246.jpg 20210911184957595.jpg 20210911185003945.jpg 20210911185010309.jpg 20210911185016659.jpg 20210911185023023.jpg 20210911185029373.jpg 20210911185035722.jpg	20210911_184942_A.igm 20210911_185021_A.igm	2021_09_11_18_49_44_R_12 TA=23.1;TB=43.2;Gain=3	
13	18:57:46	2854	108	20210911185752427.jpg 20210911185758776.jpg 20210911185805141.jpg 20210911185811490.jpg 20210911185818744.jpg 20210911185825109.jpg 20210911185831458.jpg 20210911185837823.jpg	20210911_185749_A.igm 20210911_185828_A.igm	2021_09_11_18_57_52_R_13 TA=23.4;TB=43.3;Gain=3	
14	19:07:30	2828	111	20210911190736196.jpg 20210911190742546.jpg 20210911190748902.jpg 20210911190755267.jpg 20210911190801616.jpg 20210911190807981.jpg 20210911190814330.jpg 20210911190820679.jpg	20210911_190733_A.igm 20210911_190812_A.igm	2021_09_11_19_07_35_R_14 TA=23.0;TB=43.0;Gain=3	
15	19:17:19	2847	111	20210911191725419.jpg 20210911191731768.jpg 20210911191738133.jpg 20210911191744482.jpg 20210911191750847.jpg 20210911191757196.jpg 20210911191803546.jpg 20210911191809910.jpg 20210911191813530.jpg	20210911_191722_A.igm 20210911_191802_A.igm	2021_09_11_19_17_24_R_15 TA=23.0;TB=43.0;Gain=3	
16	19:24:56	2844	108	20210911192502998.jpg 20210911192509351.jpg 20210911192515700.jpg 20210911192522059.jpg 20210911192528424.jpg 20210911192534773.jpg	20210911_192459_A.igm 20210911_192538_A.igm	2021_09_11_19_25_02_R_16 TA=22.0;TB=41.9;Gain=3	

				20210911192541122.jpg 20210911192547487.jpg			
17	19:32:14	2869	108	20210911193220600.jpg 20210911193227870.jpg 20210911193234219.jpg 20210911193240568.jpg 20210911193246933.jpg 20210911193253282.jpg 20210911193259647.jpg 20210911193305996.jpg	20210911_193218_A.igm 20210911_193258_A.igm	2021_09_11_19_32_20_R_17 TA=22.7;TB=42.7;Gain=3	
18	19:39:57	2864	105	20210911194003624.jpg 20210911194009989.jpg 20210911194016338.jpg 20210911194022687.jpg 20210911194029052.jpg 20210911194035401.jpg 20210911194041750.jpg 20210911194049020.jpg	20210911_194000_A.igm 20210911_194039_A.igm	2021_09_11_19_40_03_R_18 TA=22.0;TB=42.0;Gain=3	
19	19:49:07	2861	103	20210911194912896.jpg 20210911194919261.jpg 20210911194926515.jpg 20210911194932880.jpg 20210911194939229.jpg 20210911194945578.jpg 20210911194951943.jpg 20210911194958292.jpg	20210911_194911_A.igm 20210911_194949_A.igm	2021_09_11_19_49_13_R_19 TA=22.4;TB=42.4;Gain=3	
20	20:00:14	2838	108	20210911200020207.jpg 20210911200026556.jpg 20210911200032906.jpg 20210911200039270.jpg 20210911200045621.jpg 20210911200051970.jpg 20210911200058335.jpg 20210911200105589.jpg 20210911200111953.jpg	20210911_200017_A.igm 20210911_200057_A.igm	2021_09_11_20_00_20_R_20 TA=23.0;TB=43.0;Gain=3	
21	20:10:13	2831	107	20210911201019409.jpg 20210911201025758.jpg 20210911201032120.jpg 20210911201038469.jpg 20210911201044828.jpg 20210911201051193.jpg 20210911201057542.jpg 20210911201103891.jpg	20210911_201015_A.igm 20210911_201056_A.igm	2021_09_11_20_10_19_R_21 TA=22.6;TB=42.4;Gain=3	
22	20:19:17	2835	106	20210911201923231.jpg 20210911201929596.jpg 20210911201935945.jpg 20210911201942310.jpg 20210911201948659.jpg 20210911201955928.jpg 20210911202002278.jpg 20210911202008627.jpg	20210911_201920_A.igm 20210911_201959_A.igm	2021_09_11_20_19_23_R_22 TA=22.8;TB=42.8;Gain=3	
23	20:27:54	2829	104	20210911202759825.jpg 20210911202807094.jpg 20210911202813444.jpg 20210911202819808.jpg 20210911202826158.jpg 20210911202832507.jpg 20210911202838872.jpg 20210911202845221.jpg	20210911_202756_A.igm 20210911_202837_A.igm	2021_09_11_20_28_00_R_23 TA=22.8;TB=42.8;Gain=3	
24	20:36:42	2812	107	20210911203648221.jpg 20210911203654570.jpg	20210911_203644_A.igm 20210911_203725_A.igm	2021_09_11_20_36_49_R_24 TA=23.1;TB=43.1;Gain=3	

				20210911203701843.jpg 20210911203708192.jpg 20210911203714557.jpg 20210911203720906.jpg 20210911203727255.jpg 20210911203733620.jpg			
--	--	--	--	--	--	--	--

Oil Survey, Flight 14, 11 September 2021

Run#	Time (UTC)	Altitude (MSL)	Velocity (knots)	MSIC Data Files	FTIR Data Files	IRLS Data Files	Gamma Files
1	22:34:07	2822	109	20210911223413567.jpg 20210911223419932.jpg 20210911223426281.jpg	20210911_223409_A.igm	2021_09_11_22_34_11_R_01 TA=24.9;TB=44.8;Gain=3	
2	22:40:31	2854	116	20210911224037607.jpg 20210911224043971.jpg 20210911224050321.jpg 20210911224056670.jpg 20210911224103939.jpg 20210911224110289.jpg 20210911224116653.jpg 20210911224123010.jpg	20210911_224035_A.igm 20210911_224113_A.igm	2021_09_11_22_40_35_R_02 TA=21.4;TB=41.5;Gain=3	
3	22:49:12	2896	99	20210911224918738.jpg 20210911224925103.jpg 20210911224931452.jpg 20210911224937801.jpg 20210911224944166.jpg 20210911224950515.jpg 20210911224956878.jpg 20210911225003227.jpg 20210911225006855.jpg	20210911_224916_A.igm 20210911_224955_A.igm	2021_09_11_22_49_17_R_03 TA=21.8;TB=41.7;Gain=3	
4	22:57:35	2842	108	20210911225741713.jpg 20210911225748062.jpg 20210911225754427.jpg 20210911225800776.jpg 20210911225807141.jpg 20210911225813496.jpg 20210911225819845.jpg 20210911225826204.jpg	20210911_225738_A.igm 20210911_225817_A.igm	2021_09_11_22_57_39_R_04 TA=21.7;TB=41.7;Gain=3	
5	23:05:35	2891	97	20210911230541079.jpg 20210911230547444.jpg 20210911230553793.jpg 20210911230600152.jpg 20210911230606501.jpg 20210911230612860.jpg 20210911230619210.jpg 20210911230625574.jpg	20210911_230537_A.igm 20210911_230616_A.igm	2021_09_11_23_05_38_R_05 TA=21.0;TB=41.2;Gain=3	
6	23:15:05	2774	104	20210911231511236.jpg 20210911231517601.jpg 20210911231523950.jpg 20210911231530299.jpg 20210911231536664.jpg 20210911231543918.jpg 20210911231550283.jpg 20210911231556632.jpg	20210911_231508_A.igm 20210911_231547_A.igm	2021_09_11_23_15_09_R_06 TA=21.2;TB=41.4;Gain=3	

7	23:38:28	2571	105	20210911233834842.jpg 20210911233841200.jpg 20210911233847549.jpg 20210911233853910.jpg 20210911233900260.jpg 20210911233906618.jpg 20210911233913888.jpg 20210911233920237.jpg	20210911_233831_A.igm 20210911_233911_A.igm	2021_09_11_23_38_33_R_07 TA=22.1;TB=42.3;Gain=3	
8	23:44:38	2646	104	20210911234444365.jpg 20210911234450714.jpg 20210911234457064.jpg 20210911234503428.jpg 20210911234509778.jpg 20210911234516127.jpg 20210911234522492.jpg 20210911234528841.jpg	20210911_234441_A.igm 20210911_234521_A.igm	2021_09_11_23_44_42_R_08 TA=21.6;TB=41.7;Gain=3	

**Appendix B: Priority Sites Provided by EPA Region 6 & Louisiana Department of
Environmental Quality**

Facility_Name	Latitude	Longitude	Parish
Deltech LLC - Baton Rouge Facility	30.552892	-91.200536	East Baton Rouge
ExxonMobil Chemical Co - Baton Rouge Plastics Plant	30.551419	-91.175611	East Baton Rouge
ExxonMobil Baton Rouge Chemical Plant	30.484336	-91.169644	East Baton Rouge
Marathon Petroleum Co LP	30.068394	-90.596364	St. John the Baptist
Westlake Vinyls Co LP	30.209167	-91.017222	Ascension
Valero Refining - Meraux LLC - Meraux Refinery	29.930222	-89.944917	St. Bernard
Cornerstone Chemical Company	29.964722	-90.264722	Jefferson
Chalmette Refining LLC	29.937903	-89.969903	St. Bernard
ExxonMobil Chemical Company - Baton Rouge Chemicals North Plant	30.50465	-91.173219	East Baton Rouge
Equilon Enterprises LLC - Norco Refinery	29.995372	-90.410167	St. Charles
The Dow Chemical Company - Louisiana Operations	30.313927	-91.240586	Iberville
Rubicon LLC - Geismar Facility	30.20139	-91.01222	Ascension
BASF Corp - Geismar Site	30.18425	-91.002778	Ascension
Union Carbide Corp - St. Charles Plant	29.982289	-90.455622	St. Charles
Phillips 66 Co - Alliance Refinery	29.68406	-89.98145	Plaquemines
Axiall LLC - Plaquemine Facility	30.267167	-91.184258	Iberville
ExxonMobil Fuels & Lubricants Co - Baton Rouge Refinery	30.484392	-91.169444	East Baton Rouge
Equilon Enterprises LLC dba Shell Oil Products US - Convent Refinery	30.107684	-90.890796	St. James
Marathon Petroleum Company LP - Louisiana Refining Division - Garyville Refinery	30.061322	-90.593528	St. John the Baptist
BASF Corp - Zachary Site	29.547603	-90.523231	East Baton Rouge
Occidental Chemical Corporation - Geismar Facility	30.18819	-90.98188	Ascension
St Rose Refinery LLC - St Rose Refinery	29.950875	-90.328497	St. Charles
ExxonMobil Chemical Co - Baton Rouge Polyolefins Plant	30.56215	-91.20387	East Baton Rouge
Shell Chemical LP - Norco Chemical Plant West Site	30.004925	-90.422381	St. Charles
NOVA Chemicals Olefins LLC - Geismar Ethylene Plant	30.230619	-91.052884	Ascension
Roehm America LLC - MMA Plant	29.9575	-90.265833	Jefferson
Valero Refining - New Orleans LLC - St Charles Refinery	29.985781	-90.3955	St. Charles
Shell Chemical LP - Norco Chemical Plant - East Site	29.995556	-90.409722	St. Charles
BASF Corp - North Geismar Site	30.20594	-90.99195	Ascension
Stolthaven New Orleans, LLC - Braithwaite Facility	29.870919	-89.949339	Plaquemines
Shintech Louisiana LLC - Shintech Plaquemine Plant	30.273611	-91.173333	Iberville
Denka Performance Elastomer LLC	30.053928	-90.524792	St. John the Baptist

Formosa Plastics Corp Louisiana	30.501722	-91.185944	East Baton Rouge
DuPont Specialty Products USA LLC - Pontchartrain Site	30.05388	-90.52472	St. John the Baptist
Occidental Chemical Corp - Taft Plant	29.987222	-90.454722	St. Charles
Syngenta Crop Protection LLC - St Gabriel Plant	30.246728	-91.103508	Iberville
Mosaic Fertilizer LLC - Faustina Plant	30.083914	-90.91345	St. James
Mosaic Fertilizer LLC - Uncle Sam Plant	30.037222	-90.8275	St. James
LBC Baton Rouge LLC - Sunshine Terminal	30.294444	-91.148333	Iberville
Occidental Chemical Corporation - Convent Facility	30.055885	-90.830594	St. James
TOTAL Petrochemicals & Refining USA Inc - Carville Polystyrene Plant	30.229786	-91.073631	Iberville
Targa Midstream Services LLC	29.237034	-89.384977	Plaquemines
EnLink LIG Liquids LLC - Plaquemine Gas Processing Plant	30.236389	-91.241389	Iberville
EnLink LIG Liquids LLC - Gibson Gas Processing Plant	29.643056	-90.961944	Terrebonne
NuStar Logistics LP - St James Terminal	30.030065	-90.843463	St. James
Enterprise Gas Processing LLC - Norco Fractionation Plant	30.015411	-90.402958	St. Charles
Lone Star NGL Refinery Services LLC - Geismar Fractionation Plant	30.218889	-91.035833	Ascension
INEOS Oxide - A Division of INEOS Americas LLC	30.313889	-91.240278	Iberville
Discovery Producer Services LLC - Discovery Paradis Fractionation Plant	29.858889	-90.453333	St. Charles
Plains Marketing LP - St James Terminal	30.004341	-90.848449	St. James
Methanex USA Services LLC - Geismar Methanol Plant	30.206667	-91.020833	Ascension
Dyno Nobel LA Ammonia LLC - Ammonia Production Facility	29.964789	-90.264625	Jefferson
Kinder Morgan Liquids Terminals LLC - Geismar Methanol Terminal	30.205389	-91.023792	Ascension
South LA Methanol LP - St James Methanol Plant	30.039917	-90.863819	St. James
YCI Methanol Plant	29.97481	-90.86775	St. James
IGP Methanol LLC - Gulf Coast Methanol Complex	29.625453	-89.926611	Plaquemines
KMe St James Holdings LLC - Methanol Terminal	29.990919	-90.841239	St. James
Kemira Chemicals Inc	29.964722	-90.264722	Jefferson
PHILLIPS 66 PIPELINE LLC	29.923889	-90.482498	St. Charles
CF INDUSTRIES	30.08328	-90.957665	Ascension

Appendix C: ASPECT Systems

The US EPA ASPECT system collects airborne infrared (IR) images and chemical screening data from a safe distance over the site (about 3,000 ft AGL). The system consists of an airborne high-speed Fourier Transform Infra-Red (FTIR) spectrometer coupled with a wide-area IR Line Scanner (IRLS). The ASPECT IR systems can detect chemical compounds in both the 8-to-12-micron (800 to 1200 cm^{-1}) and 3 to 5 micron (2000 to 3200 cm^{-1}) regions. List of chemicals and detection limits are listed in Table 1. The 8 to 12 micron region is typically known as the atmospheric window region since the band is reasonably void of water and carbon dioxide influence. Spectrally, this region is used to detect carbon - non-carbon bonded compounds. The 3 to 5 micron region is also free of water and carbon dioxide but typically does not have sufficient energy for use. This band does show use in high-energy environments such as fires. The carbon - hydrogen stretch is very common in this region.

An Imperx mapping camera (29 mega pixels; mapping focal plane array) is concurrently operated as part of all chemical collections. These images are often digitally processed in lower resolution, so they can be transmitted via satellite communication. All imagery is geo-rectified using both aircraft attitude correction (pitch, yaw, and roll) and GPS positional information. Imagery can be processed while in flight or approximately 600 frames per hour can be processed once the data are downloaded from the aircraft. The high-resolution images (>20 MB each) are pulled from the ASPECT after the sortie and are available later.

All aerial photographic images collected by the ASPECT system are ortho-rectified and geospatially validated by the scientific reach back team. In general, this consists of conducting geo-registration using a USGS Digital Elevation Model (DEM) which promotes superior pixel computation and lessens topographic distortion. The image is checked by the team (using a Google Earth base map) for proper location and rotation.

Airborne radiological measurements are conducted using three fully integrated multi-crystal sodium iodide (NaI) RSX4 gamma ray spectrometers. Each RSX4 spectrometer contains four 4"x2"x16" doped NaI crystals each having an independent photomultiplier/spectrometer assembly. One RSX unit is configured with an additional upward NaI crystal utilized to provide real-time cosmic ray correction. Count and energy data from each crystal and pack is combined using a self-calibrating signal processor to generate a virtual detector output. All radiological spectrometer "packs" are further combined using a signal console controlled by the on-board central computer in the aircraft. Altitude correction data is provided by a radar altimeter with internal GPS systems within the packs serving as a backup. It should be noted that no radiological measurements were conducted on this mission.

Data is processed using automated algorithms onboard the aircraft with preliminary results being sent using a satellite system to the ASPECT scientific reach back team for QA/QC analysis. Upon landing, preliminary data results are examined and validated by the

scientific reach back team.

Table 1. ASPECT Automated Compounds

This table contains ASPECT's library of automated compounds.

Detection limits are for each chemical is found in parenthesis in units of parts per million (ppm)

Acetic Acid (2.0)	Cumene (23.1)	Isoprene (6.5)	Phosphine (8.3)
Acetone (5.6)	Diborane (5.0)	Isopropanol (8.5)	Phosphorus Oxychloride (2.0)
Acrolein (8.8)	1,1-Dichloroethene (3.7)	Isopropyl Acetate (0.7)	Propyl Acetate (0.7)
Acrylonitrile (12.5)	Dichloromethane (6.0)	MAPP (3.7)	Propylene (3.7)
Acrylic Acid (3.3)	Dichlorodifluoromethane (0.7)	Methyl Acetate (1.0)	Propylene Oxide (6.8)
Allyl Alcohol (5.3)	1,1-Difluoroethane (0.8)	Methyl Acrylate (1.0)	Silicon Tetrafluoride (0.2)
Ammonia (2.0)	Difluoromethane (0.8)	Methyl Ethyl Ketone (7.5)	Sulfur Dioxide (15)
Arsine (18.7)	Ethanol (6.3)	Methanol (5.4)	Sulfur Hexafluoride (0.07)
Bis-Chloroethyl Ether (1.7)	Ethyl Acetate (0.8)	Methylbromide (60)	Sulfur Mustard (6.0)
Boron Tribromide (0.2)	Ethyl Acrylate (0.8)	Methylene Chloride (1.1)	Sulfuryl Fluoride (1.5)
Boron Trifluoride (5.6)	Ethyl Formate (1.0)	Methyl Methacrylate (3.0)	Tetrachloroethylene (10)
1,3-Butadiene (5.0)	Ethylene (5.0)	MTEB (3.8)	1,1,1-Trichloroethane (1.9)
1-Butene (12.0)	Formic Acid (5.0)	Naphthalene (3.8)	Trichloroethylene (2.7)
2-Butene (18.8)	Freon 134a (0.8)	n-Butyl Acetate (3.8)	Trichloromethane (0.7)
Carbon Tetrachloride (0.2)	GA (Tabun) (0.7)	n-Butyl Alcohol (7.9)	Triethylamine (6.2)
Carbonyl Fluoride (0.8)	GB (Sarin) (0.5)	Nitric Acid (5.0)	Triethylphosphate (0.3)
Carbon Tetrafluoride (0.1)	Germane (1.5)	Nitrogen Mustard (2.5)	Trimethylamine (9.3)
Chlorodifluoromethane (0.6)	Hexafluoroacetone (0.4)	Nitrogen Trifluoride (0.7)	Trimethyl Phosphite (0.4)
Chloromethane (12)	Isobutylene (15)	Phosgene (0.5)	Vinyl Acetate (0.6)

Message

From: Honnellio, Anthony [Honnellio.Anthony@epa.gov]
Sent: 9/2/2021 3:44:41 PM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) [Kevin.N.Herr@uscg.mil]; Richmond, Patrick L CWO-3 USCG HQS (USA) [Patrick.L.Richmond@uscg.mil]; D05-DG-M-MIFCLANT-GEOINT [D05-DG-M-MIFCLANT-GEOINT@uscg.mil]
CC: Argenta, Edward [Argenta.Edward@epa.gov]; Taylor, Jillianne [Taylor.Jillianne@epa.gov]; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) [Ernesto.Muniz@uscg.mil]; Leclaire, Matthew J CIV USCG MIFC LANT (USA) [Matthew.J.Leclaire@uscg.mil]
Subject: RE: EPA ASPECT Opening Up Lines of Communication

LT Herr,

EPA ASPECT has received authorization to collect data for the Hurricane Ida response. The Team is re-tooling for this mission and should be in the air heading towards St. Charles Parish in about an hour. EPA Region 6 has given ASPECT a list of priority sites and will target them first. We would like to start coordination efforts such that ASPECT can assist with priority target assessment, chemical/oil release investigations and to reduce replication of effort.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Sent: Thursday, September 2, 2021 10:44 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

I think the affected area is not under your bird but ill pass this anyways. This is our current collection effort.

This is the information I need for new RFIs. You can submit one RFI with a list of targets.

Date of Request: DDMMYY
Priority: 1 Critical (24 hours), 2 High (72 Hrs), 3 Normal (7 Days), 4 Routine (As Available)
Facility Name: S2 Energy West Little Lake
Lat/Lon: 29° 32' 48.96" N 090° 09' 20.16" W
Requesting Agency: Sector NOLA
POC: John Smith
Phone Number: XXX-XXX-XXXX
Email: john.smith@uscg.mil

Last Time Information of Value: DDMMYY

Specific Collection Request: What to you need to know?

Justification: Required for Priority 1 or 2 (Priority 1 requests will only be granted for SAR and Force Reconstitution ATT)

Notes: Provide any amplifying information

VR

LT Kevin Herr

RFI/CRM/COM/ISR Manager

Area Command

O: 314-269-2642

C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>

Sent: Thursday, September 2, 2021 10:23 AM

To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

We will be flying in the Terrell, TX this morning for calibrations.

Tony Honnellio

Health Physicist

EPA ASPECT (Detail)

5 Post Office Square, Suite 100

Boston, MA 02109-3912

W: 617 918-1456

C: 617 947-4414

F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Sent: Thursday, September 2, 2021 10:12 AM

To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

Do you know rough area you intend to fly? I may have targets where you want to be.

VR

LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 9:45 AM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

Thank you for your timely response Chief Warrant Officer Richmond,

The ASPECT Team is looking forward to the opportunity to collaborate and can grant permission for the current mission's data to reside on your stormsite. That may change depending on our customer, but likely would not be an issue in the future then either. We have our pre-flight safety briefing in ~1 hour and wheels up shortly thereafter. I'll be reaching out to LT Herr (with a cc to MIFCLANT) shortly. Thank you again for your assistance, and please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>
Sent: Thursday, September 2, 2021 9:26 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

LT Kevin Herr (CC'd) is running the ISR Collections for Hurricane Ida response. I believe he is the best POC for coordination of flights and coordination for dissemination of data to the appropriate preventions teams.

If able, our team would like to also been copied on any dissemination to the above MIFCLANT Distro email. Also would like permission to hang any products on our stormsite for larger distribution to interested customers. Let me know if that will be an issue

Regards,

CWO3 Patrick L. Richmond
Maritime Intelligence Fusion Center, Atlantic
W: 757-492-4474
C: 508-564-2979

Warning: This document is FOR OFFICIAL USE ONLY (FOUO). It contains information that may be exempt from public release under the Freedom of Information Act (5 U.S.C. 552). It is to be controlled, stored, handled, transmitted, distributed, and disposed of in accordance with DHS policy relating to FOUO information and is not to be released to the public or other personnel who do not have a valid "need-to-know" without prior approval.

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 9:12 AM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Subject: [Non-DoD Source] EPA ASPECT Opening Up Lines of Communication

Good Day,

The U.S. Environmental Protection Agency's (EPA) Airborne Spectrographic Photometric Environmental Collection Technology (ASPECT - <https://www.epa.gov/emergency-response/aspect>) airplane is anticipating a Mission Assignment (MA) to fly in LA. ASPECT provides the capability to provide near real-time screening data for chemical and radiological hazards as well as NADIR/Oblique photometric data. We will be running test flights this morning, and would like to initiate data sharing with USGS HDDS with the assistance USCG District 5/Maritime Intelligence Fusion Center-Atlantic (MIFCLANT) GEOINT team. Any guidance you may be able to provide such that we can start providing data to the right folks while ASPECT is wheels up would be appreciated. Data sets include near real time XML of our flights with initial low resolution data images. ASPECT will also conduct scanning with our chemical sensors and taking Nadir and oblique (as identified by the pilots) photos. Please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

Message

From: samfritcher airborneaspect.com [samfritcher@airborneaspect.com]
Sent: 10/1/2021 2:30:56 PM
To: Taylor, Jillianne [Taylor.Jillianne@epa.gov]
CC: samfritcher airborneaspect.com [samfritcher@airborneaspect.com]
Subject: Mission Report Hurricane Ida Response 2021-09-02
Attachments: Mission Report Hurricane Ida Response 2021-09-02.pdf

Hello Jill,

Please see the attached Subject report.

Best Regards,

Sam Fritcher
Airborne ASPECT, Inc
President, CEO
410-258-6281
samfritcher@airborneaspect.com

Mission Report
2021-09-02 Hurricane Ida Response



2021-09-02 Hurricane Ida Response

Table of Contents

Summary	4
Pre-Launch Preparations.....	4
Chronology of Events Data Delivery Details	5
Flight 1 September 2, 2021.....	5
Flight 2 September 2, 2021.....	5
Flight 3 September 3, 2021.....	6
Flight 4 September 3, 2021.....	7
Flight 5 September 4, 2021.....	7
Flight 6 September 4, 2021.....	8
Flight 7 September 5, 2021.....	8
Flight 8 September 5, 2021.....	9
Flight 9 September 6, 2021.....	9
Flight 10 September 7, 2021.....	10
Flight 11 September 7, 2021.....	10
Flight 12 September 7, 2021.....	11
Flight 13 September 8, 2021.....	11
Flight 14 September 8, 2021.....	12
Flight 15 September 8, 2021.....	12
Flight 16 September 11, 2021.....	13
Flight 17 September 11, 2021.....	13
Flight 18 September 11, 2021.....	14
Operator Mission Logs	15
2021-09-02 Flight 1 Operator's Mission Log.....	16
2021-09-02 Flight 2 Operator's Mission Log.....	17
2021-09-03 Flight 3 Operator's Mission Log.....	18
2021-09-03 Flight 4 Operator's Mission Log.....	19

2021-09-04 Flight 5 Operator's Mission Log.....	20
2021-09-04 Flight 6 Operator's Mission Log.....	21
2021-09-05 Flight 7 Operator's Mission Log.....	22
2021-09-05 Flight 8 Operator's Mission Log.....	23
2021-09-06 Flight 9 Operator's Mission Log.....	24
2021-09-07 Flight 10 Operator's Mission Log.....	25
2021-09-07 Flight 11 Operator's Mission Log.....	26
2021-09-07 Flight 12 Operator's Mission Log.....	27
2021-09-08 Flight 13 Operator's Mission Log.....	28
2021-09-08 Flight 14 Operator's Mission Log.....	29
2021-09-08 Flight 15 Operator's Mission Log.....	30
2021-09-11 Flight 16 Operator's Mission Log.....	31
2021-09-11 Flight 17 Operator's Mission Log.....	32
2021-09-11 Flight 18 Operator's Mission Log.....	33

Mission Report Hurricane Ida Response

2121-09-02 through 2021-09-11

Summary

The purpose of the mission was to survey areas in southern Louisiana for evidence of chemical spills, oil slicks, or other environmental hazards.

On September 2, 2021, the mission commenced. 18 flights were logged between 2 September and 11 September. Data was collected during 15 of those flights and 3 flights were ferry flights for repositioning of the aircraft.

On 2 September, during the first flight and following the successful completion of the data collection, the aircraft central computer failed. The aircraft returned to Addison where the central computer was replaced. The mission data from that first flight was successfully recovered, and the mission resumed.

On 11 September, during flight 16, an ENVI licensing issue occurred.

No other aircraft or equipment issues were observed.

After returning to Addison on 11 September, the team was placed on standby until the mission was officially concluded on 29 September.

69.1 flight hours were logged, and 103.26 GB of data was collected.

Pre-Launch Preparations

The mission was authorized on September 2, at 15:55 UTC (10:55 Local). In anticipation of the mission, the flight crew assembled at the Airborne ASPECT hanger and readied the aircraft by moving it to the flight line. Once the mission was authorized and the mission brief was completed, the crew manned the aircraft. The aircraft engine was started at 16:07 (11:07 Local). The aircraft took off at 16:19 (11:19 Local) from Addison Airport, Texas.

Chronology of Events Data Delivery Details

Flight 1 September 2, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
16:03 UTC / 11:03 Local	Addison, Tx	Baton Rouge, La.	5.1
Pilot	Copilot	Forward Operator	Aft Operator
James Glaviano	Todd Seale	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
3	8	2021-09-02 Hurricane Ida	4.28 GB

[Link to Flight 1's Mission Log](#)

Following the successful completion of the data runs, during the copying of the data, the aircraft central computer malfunctioned. The aircraft returned to Addison, Texas for repairs.

Flight 2 September 2, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
22:05 UTC / 17:05 Local	Baton Rouge, La.	Addison	2.7
Pilot	Copilot	Forward Operator	Aft Operator
James Glaviano	Todd Seale	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
N/A	N/A	N/A	N/A

[Link to Flight 2's Mission Log](#)

Flight 2 was a ferry flight. No data was collected.

Flight 3 September 3, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
15:56 UTC / 10:56 Local	Addison	Baton Rouge	4.6
Pilot	Copilot	Forward Operator	Aft Operator
Todd Seale	James Glaviano	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
1	5	2021-09-03 Systems Test - 09-03-2021_16_54_07 & 2021-09-03 Hurricane Ida Surveillance - 09-03-2021_20_15_45	256 MB 3.25 GB

[Link to Flight 3's Mission Log](#)

On 3 September, Dr. Mark Thomas was dispatched to Addison, Texas and determined the Central Computer D: (data) drive was defective. Central Computer 001 was replaced with Central Computer 003.

The data file from flight 1 "2021-09-02 Hurricane Ida" was recovered and uploaded to the "ubuntu" FTP site.

Because the central computer had been replaced, shortly after takeoff, a complete system checkout was performed. The data file was saved as "2021-09-03 Systems Test - 09-03-2021_16_54_07".

The data files "2021-09-03 Hurricane Ida Surveillance - 09-03-2021_20_15_45" and "2021-09-03 Systems Test - 09-03-2021_16_54_07" were uploaded to the "ubuntu" site.

Flight 4 September 3, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
21:58 UTC / 16:58 Local	Baton Rouge	Beaumont (BPT)	3.4
Pilot	Copilot	Forward Operator	Aft Operator
Todd Seale	James Glaviano	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
0	8	2021-09-03 Hurricane Ida 2 - 09-04-2021_00_22_19	5.64 GB

[Link to Flight 4's Mission Log](#)

No flight anomalies were noted.

Flight 5 September 4, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
13:40 UTC / 8:40 Local	Beaumont (BPT)	Baton Rouge	5.3
Pilot	Copilot	Forward Operator	Aft Operator
Todd Seale	James Glaviano	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
1	22	2021-09-04 Hurricane Ida Flight 5	23.7 GB

[Link to Flight 5's Mission Log](#)

On the aircraft, prior to copying the data, power was interrupted to the central computer. Once the aircraft landed, the data file was recovered.

Flight 6 September 4, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
22:19 UTC / 17:19 Local	Baton Rouge	Beaumont (BPT)	3.3
Pilot	Copilot	Forward Operator	Aft Operator
Todd Seale	James Glaviano	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
2	3	2021-09-04 Hurricane Ida 6 - 09-04-2021_23_50_51	2.86 GB

[Link to Flight 6's Mission Log](#)

Due to Air Force 1 being in the area, much of the air space was restricted. This limited the amount of data that could be collected.

Flight 7 September 5, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
13:36 UTC / 08:36 Local	Beaumont (BPT)	Baton Rouge	5.1
Pilot	Copilot	Forward Operator	Aft Operator
Todd Seale	James Glaviano	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
1	16	2021-09-05 Hurrican Ida 7 - 09-05-2021_18_22_33	9.79 GB

[Link to Flight 7's Mission Log](#)

Due to cloud cover, the first 7 data collections were at 1,500 feet with a MSIC camera interval of 3 seconds. The remaining 9 data collections were at 2,800 feet with a MSIC cameral interval of 6 seconds.

Flight 8 September 5, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
20:21 UTC / 15:21 Local	Baton Rouge	Beaumont (BPT)	4.6
Pilot	Copilot	Forward Operator	Aft Operator
Todd Seale	James Glaviano	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
1	16	2021-09-05 Hurricane Ida 8 - 09-05-2021_23_47_15	9.14 GB

[Link to Flight 8's Mission Log](#)

No flight anomalies were noted.

Flight 9 September 6, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
12:54 UTC / 07:54 Local	Beaumont (BPT)	Addison	2.0
Pilot	Copilot	Forward Operator	Aft Operator
James Glaviano	Todd Seale	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
N/A	N/A	N/A	N/A

[Link to Flight 9's Mission Log](#)

Flight 9 was a ferry flight. No data was collected.

Flight 10 September 7, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
12:16 UTC / 07/16 Local	Addison	New Orleans	4.6
Pilot	Copilot	Forward Operator	Aft Operator
James Glaviano	Todd Seale	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
1	3	2021-09-07 Hurricane Ida 10 - 09-07-2021_16_33_13	1.89 GB

[Link to Flight 10's Mission Log](#)

Conditions were cloudy. 2 data runs were at 2,500 feet, and one was at 2,000 feet.

The mission was cancelled due to weather.

Flight 11 September 7, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
18:27 UTC / 13:27 Local	New Orleans	Baton Rouge	3.8
Pilot	Copilot	Forward Operator	Aft Operator
James Glaviano	Todd Seale	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
1	12	2021-09-07 Hurricane Ida 11 - 09-07-2021_21_43_54	6.32 GB

[Link to Flight 11's Mission Log](#)

Due to cloudy conditions, all data runs were at 2,500 feet.

Flight 12 September 7, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
0:05 UTC / 19:05 Local	Baton Rouge	Beaumont (BPT)	1.3
Pilot	Copilot	Forward Operator	Aft Operator
James Glaviano	Todd Seale	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
N/A	N/A	N/A	N/A

[Link to Flight 12's Mission Log](#)

Flight 12 was a ferry flight. No data was collected.

Flight 13 September 8, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
12:55 UTC / 7:55 Local	Beaumont (BPT)	Baton Rouge	3.4
Pilot	Copilot	Forward Operator	Aft Operator
James Glaviano	Todd Seale	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
1	10	2021-09-08 Hurricane Ida 11 - 09-08-2021_15_57_03	3.99 GB

[Link to Flight 13's Mission Log](#)

No flight anomalies were noted.

Flight 14 September 8, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
18:03 UTC / 13:03 Local	Baton Rouge	Baton Rouge	4.6
Pilot	Copilot	Forward Operator	Aft Operator
James Glaviano	Todd Seale	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
1	14	2021-09-08 Hurricane Ida 12 - 09-08-2021_22_06_41	7.42 GB

[Link to Flight 14's Mission Log](#)

Due to cloudy conditions, all data runs were at 2,500 feet.

Flight 15 September 8, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
0:20 UTC / 19:20 Local	Baton Rouge	Addison	2.5
Pilot	Copilot	Forward Operator	Aft Operator
James Glaviano	Todd Seale	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
N/A	N/A	N/A	N/A

[Link to Flight 15's Mission Log](#)

Flight 15 was a ferry flight. No data was collected.

Flight 16 September 11, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
12:06 UTC / 7:06 Local	Addison	Houma Terrebonne, La	3.0
Pilot	Copilot	Forward Operator	Aft Operator
James Glaviano	Todd Seale	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
1	0	2021-09-11 Oil mission 1 - 09-11-2021_14_20_04	789 MB

[Link to Flight 16's Mission Log](#)

Prior to take off, the IRLS system was reconfigured for oil detection. When ENVI was started, an ENVI license error was displayed. The backup C drive was installed with the same error noted. The original C drive was installed which indicated a system restore was required. The system restore was completed and the ENVI license error did not recur. A single 45 second test line was run and processed with no issues noted.

Flight 17 September 11, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
15:46 UTC / 10:46 Local	Houma Terrebonne, La	Houma Terrebonne, La	5.4
Pilot	Copilot	Forward Operator	Aft Operator
James Glaviano	Todd Seale	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
1	23	2021-09-11 Oil mission 2 - 09-11-2021_20_46_28	18.0 GB

[Link to Flight 17's Mission Log](#)

No flight anomalies were noted.

Flight 18 September 11, 2021

Engine Start	Takeoff Location	Landing Location	Flight Duration
22:04 UTC / 17:04 Local	Houma Terrebonne, La	Addison	4.4
Pilot	Copilot	Forward Operator	Aft Operator
Todd Seale	James Glaviano	Steven Brister	Jimmy Crisp
Test Runs	Data Runs	Data File Name	Data Size
1	7	2021-09-11 Oil Mission 3 - 09-11-2021_23_54_21	5.93 GB

[Link to Flight 18's Mission Log](#)

Due to cloudy conditions, the last 3 data collection runs were at 2,700, 2,500, and 2,600 feet respectively.

Following data collection and processing, the aircraft returned to Addison.

This was the final flight of the mission.

Operator Mission Logs

2021-09-02 Flight 1 Operator's Mission Log

[Link to Flight 1's Summary](#)

*** ASPECT Mission Order (Short version) ***

Page 3 of 3

FLT 1

EPA SERIALS ASPECT		MISSION RUN LOG			
DATE: 09-02 Start: 11:03 WHEELS UP: 11:18		FLIGHT #: 1 WHEELS DOWN:			
LINE #	PASS #	LINE NAME	AGL	COMMENT	
RUN 1	Test Photo	1	Test Photo	5000	Aft Center View section Not working
RUN 2	Test Photo	2	Test Photo	5000	
RUN 3	Test Photo	3	Test Photo	5000	
RUN 4	L1	1	6 of Platform 2900	30.003797	-90.406662 30 0.2270
RUN 5	L2	1	2600	29.014603	30 0.2270
RUN 6	L3	1	2600	29.014603	30 0.2270
RUN 7	L3	2	"	"	"
RUN 8	L1	2		29.423809	30 0.2270
RUN 9	L4	1		-90.406662	-90.406662
RUN 10	L5	1			Power Plant I
RUN 11	L6	1			Power Plant II
RUN 12					
RUN 13					
RUN 14					
RUN 15					
RUN 16					
RUN 17					
RUN 18					
RUN 19					
RUN 20					

Temp 80 Alt 274 10

29.952396 29.371432
-90.482098 -90.244253

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-02 Flight 2 Operator's Mission Log

[Link to Flight 2's Summary](#)

Flight 2

2021-09-02

Ferry Flight Baton Rouge to Addison

No Data, no mission log

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-03 Flight 3 Operator's Mission Log

[Link to Flight 3's Summary](#)

*** ASPECT Mission Order (Short version) *** *FLT 3*

Page 3 of 3

SEPA SPECIAL OPERATION		MISSION RUN LOG			
		DATE: 09-03-21	FLIGHT #: 1		
		Start: 10:56			
		WHEELS UP: 11:14	WHEELS DOWN:		
	LINE #	PASS #	LINE NAME	AGL	COMMENT
RUN 1	<i>Test 1</i>	<i>1</i>		<i>2800</i>	
RUN 2	<i>L1</i>	<i>P1</i>	<i>Axial</i>	<i>2800</i>	
RUN 3	<i>L1</i>	<i>P2</i>	<i>Axial</i>	<i>2800</i>	
RUN 4	<i>L2</i>	<i>P1</i>	<i>Shimtech</i>	<i>2800</i>	
RUN 5	<i>L2</i>	<i>P2</i>	<i>Shimtech</i>	<i>2800</i>	
RUN 6	<i>L2</i>	<i>P3</i>	<i>Shimtech</i>	<i>2800</i>	
RUN 7					
RUN 8					
RUN 9					
RUN 10					
RUN 11					
RUN 12					
RUN 13					
RUN 14					
RUN 15					
RUN 16					
RUN 17					
RUN 18					
RUN 19					
RUN 20					

Station B 10 Variable 3 32°
ALL 280 10 32°F

2021-09-03 Flight 4 Operator's Mission Log

[Link to Flight 4's Summary](#)

FLT 4

Mission Name: #72							
Date: 09-03 Mission Orders (Y/N):				Take Off Location: DTR			
Pilot: Todd		Copilot: James		Engine Start: 5:00		Flight Hours:	
Fwd Operator: Steve		Aft Operator: Jimmy		Landing Location:			
Wind Direction:		Wind Speed:		Temperature:		Plume / Smoke:	
Surface: 360		06		32		Color:	
Altitude: 380		11		82		Direction Moving:	
						Rising or Close to Ground:	
						Ground Activities:	
Mission Notes: in air 5:10							
Run	Line	Pass	Remarks	Run	Line	Pass	Remarks
1	L1	P1	INCO5	14			
2	L1	P2	INCO5	15			
3	L2	P1	Chem 6	16			
4	L2	P2	Chem 6	17			
5	L2	P1	Disturb 1	18			
6	L3	P2	Disturb 1	19			
7	L4	P1	Plastics	20			
8	L4	P2	Plastics	21			
9				22			
10				23			
11				24			
12				25			
13				26			

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-04 Flight 5 Operator's Mission Log

[Link to Flight 5's Summary](#)

WHEELS UP: 8:49 WHEELS DOWN: 09:04 FLT 5					
FL 5 E start: 9:40					
	LINE #	PASS #	LINE NAME	AGL	COMMENT
RUN 1	Test Photo	1	Test Photo	5400 4400	
RUN 2	L1	1	Shunshine	2800	
RUN 3	L1	2	Shunshine	2800	
RUN 4	L2	1	Entink Syracuse	2900	
RUN 5	L2	2	Entink Syracuse	2900	
RUN 6	L3	1	Syracuse	2800	
RUN 7	L3	2	Syracuse	2800	
RUN 8	L4	1	Canville Poly	2900	
RUN 9	L4	2	Canville Poly	2900	
RUN 10	L5	1	Nova	2900	
RUN 11	L5	2	Nova	2800	
RUN 12	L5	3	Nova	2800	
RUN 13	L6	1	Lone Star	2800	
RUN 14	L6	2	Lone Star	2800	
RUN 15	L7	1	3 Fac's	2800	
RUN 16	L7	2	3 Fac's	2800	
RUN 17	L8	1	Rubicon	2800	
RUN 18	L8	2	Rubicon	2800	
RUN 19	L9	1	North Galesmar	2800	
RUN 20	L9	2	North Galesmar	2800	

Ground Calm winds 26°C
 Alt 340 12 76°F
 Run 21 L10 1 CF Indent 2800
 Run 22 L10 2 CF Indent 2800
 Run 23 L10 3 CF Indent 2800

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-04 Flight 6 Operator's Mission Log

[Link to Flight 6's Summary](#)

WHEELS UP: 5:00 6 Starts 5:19					WHEELS DOWN: 4:2 09/04					FLT 6				
	LINE #	PASS #	LINE NAME	AGE	COMMENT									
RUN 1	Test Photos	1	Test Photo	2900										
RUN 2	Test Photos	2	Test Photo	2900										
RUN 3	L1	1	1st Fuc	2900										
RUN 4-5	L2	1	2nd Fuc	2900										
RUN 6-7	L3	1	2nd Fuc	2900										
RUN 6														
RUN 7														
RUN 8														
RUN 9														
RUN 10														
RUN 11														
RUN 12														
RUN 13														
RUN 14														
RUN 15														
RUN 16														
RUN 17														
RUN 18														
RUN 19														
RUN 20														

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.
 This data is for the designated recipient only and does contain privileged or confidential information.
 Any unauthorized use of this is prohibited.

2021-09-05 Flight 7 Operator's Mission Log

[Link to Flight 7's Summary](#)

		WHEELS UP: 8:46 Start 8:56	WHEELS DOWN: FLT 7		
	LINE #	PASS #	LINE NAME	ALT	COMMENT
RUN 1	Test Photos	1	Test Photos	5500	
RUN 2	L1	1	25405	1500	
RUN 3	L1	2	25405	1500	
RUN 4	L2	1	2387	1500	
RUN 5	L3	1	oil spill 1500	1500	
RUN 6	L3	2	oil spill 1500	1500	
RUN 7	L3	3	oil spill 1500	1500	
RUN 8	L3	4	oil spill 1500	1500	
RUN 9	L4	1	17897	2800	
RUN 10	L4	2	17897	2800	
RUN 11	L5	1	Lat Lon 2800	2800	
RUN 12	L6	1	204912	2800	
RUN 13	L7	1	2414	2800	
RUN 14	L7	2	2418	2800	
RUN 15	L8	1	87738	2800	
RUN 16	L9	1	1239 1376	2800	
RUN 17	L10	1	9701	2800	
RUN 18					
RUN 19					
RUN 20					

Surface 030 23 23°C
Alt 345 14 75°F

24.1334405 24 08.0084
-90-1058424 -90 11.1506
24.4705 24 28.830
-99.9641 -99 56.086

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-05 Flight 8 Operator's Mission Log

[Link to Flight 8's Summary](#)

WHEELS UP: 2:33 C. 326		WHEELS DOWN: 6:47 09/05		
326		#2		
LINE #	PASS #	LINE NAME	ALT	COMMENT
RUN 1	Post Photos	1		2800
RUN 2	2532	1	Unack. Same	2800
RUN 3	36534	1	NxStar	2800
RUN 4	213599	1	KAL	2800
RUN 5	129733	1	Prains Helms	2800
RUN 6	194165	1	mutual Plant	2800
RUN 7	199310	1	Donka	2800
RUN 8	104090	1	Discovery	2800
RUN 9	1137093	1	Taft Plant	2800
RUN 10	1137/1093	2	Union	2800
RUN 11	1137/1093	3	Carbide	2800
RUN 12	4384	1	Shell Chem	2800
RUN 13	51546	1	Enterprise	2800
RUN 14	51546	1	Enterprise	2800
RUN 15	51546	1	Enterprise	2800
RUN 16	3462	1	St. Rosa	2800
RUN 17	26003	1	Volero Helms	2800
RUN 18				
RUN 19				
RUN 20				

Surface 270 07 35C
Alt 305 12 85°F

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-06 Flight 9 Operator's Mission Log

[Link to Flight 9's Summary](#)

Flight 9

2021-09-06

Ferry Flight Beaumont to Addison

No Data, no mission log

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-07 Flight 10 Operator's Mission Log

[Link to Flight 10's Summary](#)

FIT 10
10

*** ASPECT Mission Order ***

Page 3 of 4

P. James C. 1011
F. Steve P. Jimmy

EPA ENVIRONMENTAL PROTECTION AGENCY		MISSION RUN LOG			
DATE:	9/7/2021	FLIGHT #:	1011		
WHEELS UP:	7:10 28	WHEELS DOWN:	IDA		
C. Stack: 7.16					
LINE #	PASS #	LINE NAME	AGL = ~2800'	COMMENT	
			AI		
RUN 1	Test photo	1			
RUN 2	Photo	1	Port	2500	No AI Number
RUN 3	24412	1	Port	2500	
RUN 4	Photo	1	Port	2500	
RUN 5					
RUN 6					
RUN 7					
RUN 8					
RUN 9					
RUN 10					
RUN 11					
RUN 12					
RUN 13					
RUN 14					
RUN 15					
RUN 16					
RUN 17					
RUN 18					
RUN 19					
RUN 20					

Surface: Calm 2-4
Alt: 101 3 77°E

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-07 Flight 11 Operator's Mission Log

[Link to Flight 11's Summary](#)

Flight 11

*** ASPECT Mission Order ***

Page 3 of 4

12000 L 1000

FS000 2000

EPA ENVIRONMENTAL PROTECTION AGENCY		MISSION RUN LOG			
DATE: 9/6/2021		FLIGHT #: 11			
WHEELS UP: 1:42		WHEELS DOWN: 1:46 pm			
Estimate 1127					
LINE #	PASS #	LINE NAME	AGL = "2800" AI	COMMENT	
RUN 1	1	Test	2500		
RUN 2	3397	Bug A Comp	2500		
RUN 3	2352	Uncle Sam's	2500		
RUN 4	129733	Plains Market	2500		
RUN 5	144165	Yei Main	2500		
RUN 6	3544	Occidental	2500		
RUN 7	188074	St James	2500		
RUN 8	213599	RMA St James	2500		
RUN 9	129733	Plains Market	2500	Rain, Moderate	
RUN 10	2552	Uncle Sam's	2500		
RUN 11	330	Marathon	2500		
RUN 12	3165	Refining 2, 3, 4, 5	2500		
RUN 13	109040	Refining 2, 3, 4, 5	2500		
RUN 14					
RUN 15					
RUN 16					
RUN 17					
RUN 18					
RUN 19					
RUN 20					

Alt: 170 6
Surface: 120 5 320L

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-07 Flight 12 Operator's Mission Log

[Link to Flight 12's Summary](#)

Flight 12

2021-09-07

Ferry Flight Baton Rouge to Beaumont

No Data, no mission log

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-08 Flight 13 Operator's Mission Log

[Link to Flight 13's Summary](#)

FL-13

*** ASPECT Mission Order ***

Page 3 of 4

Steve R. Dwyer

MISSION RUN LOG

DATE: 9/8/21
0908
WHEELS UP: 0907
0908-755-
FLIGHT #: 13
Ida Day 5 AM
Ida Day 7 AM

WHEELS DOWN:

LINE #	PASS #	LINE NAME	AGL ~2800' AI	COMMENT
RUN 1	1	Test	3500	
RUN 2	1	Former	2800	Crash at Beginning
RUN 3	1	Overhead	2800	Point on NE
RUN 4	1	Rail	2800	Point on NE
RUN 5	1	Mosaic	2800	Point on NE
RUN 6	1	Equator	2800	Point on NE
RUN 7	1	Convent Fac.	2800	Point on NE
RUN 8	1	St. James	2800	Point on NE
RUN 9	1	Enterprise	2800	Point on NE
RUN 10	1	Shell	2800	Point on NE
RUN 11	1	Harbor	2800	Point on NE
RUN 12	1	Occidental	2800	Point on NE
RUN 13	1	Tank	2800	Point on NE
RUN 14	1	Water	2800	Point on NE
RUN 15	1	St. Charles	2800	Point on NE
RUN 16	1		2800	Point on NE
RUN 17	1		2800	Point on NE
RUN 18	1		2800	Point on NE
RUN 19	1		2800	Point on NE
RUN 20	1		2800	Point on NE

Alt 350 24 280

TPC didn't display switches

Grounds Calm 2300

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-08 Flight 14 Operator's Mission Log

[Link to Flight 14's Summary](#)

Fit ~~14~~
14

*** ASPECT Mission Order ***

Page 3 of 4

1 run - 1000
Steve R Jimmy

MISSION RUN LOG

DATE: ~~9/8/2021~~

FLIGHT #: ~~14~~

9/8
WHEELS UP: 1117,
Start 1.00

in Day 7 pm
WHEELS DOWN:

	LINE #	PASS #	LINE NAME	AGL ~2800' AI	COMMENT
RUN 1	Test Photos	1	Good photos RAF		
RUN 2	1137	1	anti-drug Tuff	2500	was told wrong location wrong site was hit is actually 1238
RUN 3	4738 4376	1	Charlotte Stothman Refining	2500	
RUN 4	4384	1	Shell Refining West	2500	
RUN 5	1137	2	Refining Tuff	2500	
RUN 6	2600	1	Velero Refining	2500	
RUN 7	51546	1	Enterprise Refining	2800	
RUN 8	3462	1	St. Rose Refinery	2500	
RUN 9	9701	1	Koch Refining	2500	
RUN 10	9701	2	"	2500	
RUN 11	9701	3	"	2500	Lat Lon Correction to below 29.95955 -90.27010
RUN 12	1376	1	Charlotte Refining	2500	
RUN 13	1238	1	Velero Refining	2500	
RUN 14	1238	2	"	2500	
RUN 15	Pipeline	1		2500	29.90842 -90.48115 29.93397 -90.48550
RUN 16					
RUN 17					
RUN 18					
RUN 19					
RUN 20					

Alt 002 26 80°F
Surface 190 3 27°F

Food didn't display switches

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.

This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-08 Flight 15 Operator's Mission Log

[Link to Flight 15's Summary](#)

Flight 15

2021-09-08

Ferry Flight Baton Rouge to Addison

No Data, no mission log

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.


This data is for the designated recipient only and does contain privileged or confidential information.

Any unauthorized use of this is prohibited.

2021-09-11 Flight 16 Operator's Mission Log

[Link to Flight 16's Summary](#)

Flt 16 *** ASPECT Mission Order (Short version) *** P James C. Toth
 Page 3 of 3 F Steve R. Jimmy

		MISSION RUN LOG			
DATE: 9/11		FLIGHT #: 011 Det. 1			
WHEELS UP: 7:15a		WHEELS DOWN:			
E. Start 1706a					
	LINE #	PASS #	LINE NAME	AGL	COMMENT
RUN 1	Test Photo	1			45 sec Run
RUN 2					
RUN 3					
RUN 4					
RUN 5					
RUN 6					
RUN 7					
RUN 8					
RUN 9					
RUN 10					
RUN 11					
RUN 12					
RUN 13					
RUN 14					
RUN 15					
RUN 16					
RUN 17					
RUN 18					
RUN 19					
RUN 20					

NOTICE: PROPRIETARY INFORMATION OF AIRBORNE ASPECT, INC.
 This data is for the designated recipient only and does contain privileged or confidential information.
 Any unauthorized use of this is prohibited.

2021-09-11 Flight 18 Operator's Mission Log

[Link to Flight 18's Summary](#)

Flight 18 *** ASPECT Mission Order (Short version) ***

Page 3 of 3

P Todd C James
F Steve R Jimmy

EPA CRASH RECORDING		MISSION RUN LOG			
DATE: 9/11		FLIGHT #: 011 Mission 3			
WHEELS UP: 5:17		WHEELS DOWN:			
E. Start 5:04					
	LINE #	PASS #	LINE NAME	AGL	COMMENT
RUN 1	1	1		2800	
RUN 2	L1G5	1		2800	
RUN 3	L2G5	1		2800	
RUN 4	L3G5	1		2800	
RUN 5	L4G5	1		2800	
RUN 6	L5G5	1		2700	
RUN 7	L3G4	2		2500	
RUN 8	L3G4	2		2600	
RUN 9					
RUN 10					
RUN 11					
RUN 12					
RUN 13					
RUN 14					
RUN 15					
RUN 16					
RUN 17					
RUN 18					
RUN 19					
RUN 20					

Ground 090 3 29°C
Alt 058 22 74°F

Message

From: samfritcher airborneaspect.com [samfritcher@airborneaspect.com]
Sent: 10/15/2021 6:55:39 PM
To: Taylor, Jillianne [Taylor.Jillianne@epa.gov]
Subject: Airborne ASPECT, INC Data Item Document Summary September 2021
Attachments: Airborne ASPECT, INC Data Item Document Summary September 2021.pdf

Hello Jill,

Please see the Subject attached file.

Best Regards,

Sam Fritcher
Airborne ASPECT, Inc
President, CEO
410-258-6281
samfritcher@airborneaspect.com

Airborne ASPECT Summary Report September 2021

Airborne ASPECT was successfully deployed to survey areas in southern Louisiana for evidence of chemical, oil slicks, or other environmental hazards in the aftermath of Hurricane Ida. Flight hours of 69.1 hours were logged, and 103.26 GB of data was collected. The mission report was submitted the day following the completion of the mission.

On 3 September 2021 Airborne ASPECT hosted an EPA contractor for the repair of the aircraft central computer.

On 23 September 2021, Rad Pack SN 5450 was re-installed in the aircraft. That unit had been removed for repair on 26 August 2021.

A meeting with Jill Taylor and Tony Honnellio occurred on 23 September. The purpose of the meeting was to obtain clarification of the Contract Data Item Documents and what if any contract changes were warranted to reflect those changes.

Contract period 1 September 2021 thru 28 February 2022 is for 150 flight hours. The cum flight hours thru 30 September 2021 is 69.1 hours leaving a balance of 89.9 flight hours.

Contract period 1 September 2021 thru 28 February 2022 is 6 flight hours for proficiency flights. The cum proficiency flight hours through 30 September 2021 is 0.0 hours leaving a balance of 6.0 proficiency flight hours.

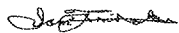
Contract Funding amount \$500,000.00:

Cum invoiced through 30 September \$223,733.75.

Remaining funding \$276,366.25.

Estimate to Complete is \$1,761,590.

Best Regards,



Sam Fritcher
Airborne ASPECT, Inc
President, CEO
410-258-6281
samfritcher@airborneaspect.com

Message

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) [Kevin.N.Herr@uscg.mil]
Sent: 9/2/2021 4:03:04 PM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) [Patrick.L.Richmond@uscg.mil]; Honnellio, Anthony [Honnellio.Anthony@epa.gov]; D05-DG-M-MIFCLANT-GEOINT [D05-DG-M-MIFCLANT-GEOINT@uscg.mil]
CC: Argenta, Edward [Argenta.Edward@epa.gov]; Taylor, Jillianne [Taylor.Jillianne@epa.gov]; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) [Ernesto.Muniz@uscg.mil]; Leclaire, Matthew J CIV USCG MIFC LANT (USA) [Matthew.J.Leclaire@uscg.mil]
Subject: RE: EPA ASPECT Opening Up Lines of Communication

CWO Richmond,

Copy. Will discuss with ICP to get a requirement on the board.

I see EPA on CC line.

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>
Sent: Thursday, September 2, 2021 12:01 PM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Honnellio, Anthony <Honnellio.Anthony@epa.gov>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

LT,

Just FYSA we are currently building products with areas covered from the attached images of observed sheens. Not sure if this will help with the EPA flight, but these were not NAIs.

Also is an attached spreadsheet with all the cords for the observed sheens.

Regards,

CWO3 Patrick L. Richmond
Maritime Intelligence Fusion Center, Atlantic
W: 757-492-4474
C: 508-564-2979

Warning: This document is FOR OFFICIAL USE ONLY (FOUO). It contains information that may be exempt from public release under the Freedom of Information Act (5 U.S.C. 552). It is to be controlled, stored, handled, transmitted, distributed, and disposed of in accordance with DHS policy relating to FOUO information and is not to be released to the public or other personnel who do not have a valid "need-to-know" without prior approval.

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Sent: Thursday, September 2, 2021 11:55 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

Understood. The list we submitted earlier is still current and represents our current priorities.

Priority: 1 Critical (24 hours), 2 High (72 Hrs), 3 Normal (7 Days), 4 Routine (As Available)

Priority 5 are fulfilled requirements and no additional collect is requested.

We have the following targets located in or immediately outside St Charles Parrish:

REQ NUM	Priority	Structure Name	Facility Status	DMS LAT	DMS LON	DD LAT	DD LON
0066	3	PORT_NEW_ORLEANS	Unknown	29° 54' 51.00" N	090° 06' 48.00" W	#####	#####
0058	3	CARGILL_GRAINS_WESTWEGO	Unknown	29° 56' 18.60" N	090° 08' 43.20" W	#####	#####
0081	2	ORLEANS_MARINA	Flooding	30° 01' 18.60" N	090° 07' 00.00" W	#####	#####

Complete list of cur
VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

rent requirements attached.

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>

Sent: Thursday, September 2, 2021 11:45 AM

To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

LT Herr,

EPA ASPECT has received authorization to collect data for the Hurricane Ida response. The Team is re-tooling for this mission and should be in the air heading towards St. Charles Parish in about an hour. EPA Region 6 has given ASPECT a list of priority sites and will target them first. We would like to start coordination efforts such that ASPECT can assist with priority target assessment, chemical/oil release investigations and to reduce replication of effort.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Sent: Thursday, September 2, 2021 10:44 AM

To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnelio,

I think the affected area is not under your bird but ill pass this anyways. This is our current collection effort.

This is the information I need for new RFIs. You can submit one RFI with a list of targets.

Date of Request: DDMMYY

Priority: 1 Critical (24 hours), 2 High (72 Hrs), 3 Normal (7 Days), 4 Routine (As Available)

Facility Name: S2 Energy West Little Lake

Lat/Lon: 29° 32' 48.96" N 090° 09' 20.16" W

Requesting Agency: Sector NOLA

POC: John Smith

Phone Number: XXX-XXX-XXXX

Email: john.smith@uscg.mil

Last Time Information of Value: DDMMYY

Specific Collection Request: What to you need to know?

Justification: Required for Priority 1 or 2 (Priority 1 requests will only be granted for SAR and Force Reconstitution ATT)

Notes: Provide any amplifying information

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 10:23 AM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

We will be flying in the Terrell, TX this morning for calibrations.

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Sent: Thursday, September 2, 2021 10:12 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

Do you know rough area you intend to fly? I may have targets where you want to be.

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager

Area Command

O: 314-269-2642

C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>

Sent: Thursday, September 2, 2021 9:45 AM

To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

Thank you for your timely response Chief Warrant Officer Richmond,

The ASPECT Team is looking forward to the opportunity to collaborate and can grant permission for the current mission's data to reside on your stormsite. That may change depending on our customer, but likely would not be an issue in the future then either. We have our pre-flight safety briefing in ~1 hour and wheels up shortly thereafter. I'll be reaching out to LT Herr (with a cc to MIFCLANT) shortly. Thank you again for your assistance, and please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>

Sent: Thursday, September 2, 2021 9:26 AM

To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

LT Kevin Herr (CC'd) is running the ISR Collections for Hurricane Ida response. I believe he is the best POC for coordination of flights and coordination for dissemination of data to the appropriate preventions teams.

If able, our team would like to also been copied on any dissemination to the above MIFCLANT Distro email. Also would like permission to hang any products on our stormsite for larger distribution to interested customers. Let me know if that will be an issue

Regards,

CWO3 Patrick L. Richmond
Maritime Intelligence Fusion Center, Atlantic
W: 757-492-4474
C: 508-564-2979

Warning: This document is FOR OFFICIAL USE ONLY (FOUO). It contains information that may be exempt from public release under the Freedom of Information Act (5 U.S.C. 552). It is to be controlled, stored, handled, transmitted, distributed, and disposed of in accordance with DHS policy relating to FOUO information and is not to be released to the public or other personnel who do not have a valid "need-to-know" without prior approval.

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 9:12 AM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Subject: [Non-DoD Source] EPA ASPECT Opening Up Lines of Communication

Good Day,

The U.S. Environmental Protection Agency's (EPA) Airborne Spectrographic Photometric Environmental Collection Technology (ASPECT - <https://www.epa.gov/emergency-response/aspect>) airplane is anticipating a Mission Assignment (MA) to fly in LA. ASPECT provides the capability to provide near real-time screening data for chemical and radiological hazards as well as NADIR/Oblique photometric data. We will be running test flights this morning, and would like to initiate data sharing with USGS HDDS with the assistance USCG District 5/Maritime Intelligence Fusion Center-Atlantic (MIFCLANT) GEOINT team. Any guidance you may be able to provide such that we can start providing data to the right folks while ASPECT is wheels up would be appreciated. Data sets include near real time XML of our flights with initial low resolution data images. ASPECT will also conduct scanning with our chemical sensors and taking Nadir and oblique (as identified by the pilots) photos. Please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

Message

From: Hudson, Scott [Hudson.Scott@epa.gov]
Sent: 9/2/2021 4:17:45 PM
To: Taylor, Jillianne [Taylor.Jillianne@epa.gov]; Turville Rick [Rick.Turville@kalmancoinc.com]; mark [mark@spectralsystemsglobal.com]; robert.kroutil@kalmancoinc.com; Dess Brian [brian.dess@kalmancoinc.com]; Jeff Stapleton [jeff.stapleton@kalmancoinc.com]
Subject: FW: EPA ASPECT Opening Up Lines of Communication
Attachments: Hurricane IDA ISR Collection Summary 02SEP21.xlsx

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 02, 2021 10:56 AM
To: Taylor, Jillianne <Taylor.Jillianne@epa.gov>; Argenta, Edward <Argenta.Edward@epa.gov>; Hudson, Scott <Hudson.Scott@epa.gov>
Subject: FW: EPA ASPECT Opening Up Lines of Communication

FYI

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Sent: Thursday, September 2, 2021 10:44 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

I think the affected area is not under your bird but ill pass this anyways. This is our current collection effort.

This is the information I need for new RFIs. You can submit one RFI with a list of targets.

Date of Request: DDMMYY
Priority: 1 Critical (24 hours), 2 High (72 Hrs), 3 Normal (7 Days), 4 Routine (As Available)
Facility Name: S2 Energy West Little Lake
Lat/Lon: 29° 32' 48.96" N 090° 09' 20.16" W
Requesting Agency: Sector NOLA
POC: John Smith
Phone Number: XXX-XXX-XXXX
Email: john.smith@uscg.mil

Last Time Information of Value: DDMMYY

Specific Collection Request: What to you need to know?

Justification: Required for Priority 1 or 2 (Priority 1 requests will only be granted for SAR and Force Reconstitution ATT)

Notes: Provide any amplifying information

VR

LT Kevin Herr

RFI/CRM/COM/ISR Manager

Area Command

O: 314-269-2642

C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>

Sent: Thursday, September 2, 2021 10:23 AM

To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

We will be flying in the Terrell, TX this morning for calibrations.

Tony Honnellio

Health Physicist

EPA ASPECT (Detail)

5 Post Office Square, Suite 100

Boston, MA 02109-3912

W: 617 918-1456

C: 617 947-4414

F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Sent: Thursday, September 2, 2021 10:12 AM

To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

Do you know rough area you intend to fly? I may have targets where you want to be.

VR

LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 9:45 AM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

Thank you for your timely response Chief Warrant Officer Richmond,

The ASPECT Team is looking forward to the opportunity to collaborate and can grant permission for the current mission's data to reside on your stormsite. That may change depending on our customer, but likely would not be an issue in the future then either. We have our pre-flight safety briefing in ~1 hour and wheels up shortly thereafter. I'll be reaching out to LT Herr (with a cc to MIFCLANT) shortly. Thank you again for your assistance, and please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>
Sent: Thursday, September 2, 2021 9:26 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

LT Kevin Herr (CC'd) is running the ISR Collections for Hurricane Ida response. I believe he is the best POC for coordination of flights and coordination for dissemination of data to the appropriate preventions teams.

If able, our team would like to also been copied on any dissemination to the above MIFCLANT Distro email. Also would like permission to hang any products on our stormsite for larger distribution to interested customers. Let me know if that will be an issue

Regards,

CWO3 Patrick L. Richmond
Maritime Intelligence Fusion Center, Atlantic
W: 757-492-4474
C: 508-564-2979

Warning: This document is FOR OFFICIAL USE ONLY (FOUO). It contains information that may be exempt from public release under the Freedom of Information Act (5 U.S.C. 552). It is to be controlled, stored, handled, transmitted, distributed, and disposed of in accordance with DHS policy relating to FOUO information and is not to be released to the public or other personnel who do not have a valid "need-to-know" without prior approval.

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 9:12 AM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Subject: [Non-DoD Source] EPA ASPECT Opening Up Lines of Communication

Good Day,

The U.S. Environmental Protection Agency's (EPA) Airborne Spectrographic Photometric Environmental Collection Technology (ASPECT - <https://www.epa.gov/emergency-response/aspect>) airplane is anticipating a Mission Assignment (MA) to fly in LA. ASPECT provides the capability to provide near real-time screening data for chemical and radiological hazards as well as NADIR/Oblique photometric data. We will be running test flights this morning, and would like to initiate data sharing with USGS HDDS with the assistance USCG District 5/Maritime Intelligence Fusion Center-Atlantic (MIFCLANT) GEOINT team. Any guidance you may be able to provide such that we can start providing data to the right folks while ASPECT is wheels up would be appreciated. Data sets include near real time XML of our flights with initial low resolution data images. ASPECT will also conduct scanning with our chemical sensors and taking Nadir and oblique (as identified by the pilots) photos. Please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

Message

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) [Kevin.N.Herr@uscg.mil]
Sent: 9/2/2021 9:05:28 PM
To: Honnellio, Anthony [Honnellio.Anthony@epa.gov]; Richmond, Patrick L CWO-3 USCG HQS (USA) [Patrick.L.Richmond@uscg.mil]; D05-DG-M-MIFCLANT-GEOINT [D05-DG-M-MIFCLANT-GEOINT@uscg.mil]
CC: Argenta, Edward [Argenta.Edward@epa.gov]; Taylor, Jillianne [Taylor.Jillianne@epa.gov]; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) [Ernesto.Muniz@uscg.mil]; Leclaire, Matthew J CIV USCG MIFC LANT (USA) [Matthew.J.Leclaire@uscg.mil]
Subject: RE: EPA ASPECT Opening Up Lines of Communication

EPA,

CG 2317 will be operating on 345.0 or CG 409/410/113.

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA)
Sent: Thursday, September 2, 2021 5:02 PM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

EPA,

Request Freq, callsign, and working altitude of your aircraft. We have a 144 going up in same area. Will pass same when I have it.

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>

Sent: Thursday, September 2, 2021 11:45 AM

To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

LT Herr,

EPA ASPECT has received authorization to collect data for the Hurricane Ida response. The Team is re-tooling for this mission and should be in the air heading towards St. Charles Parish in about an hour. EPA Region 6 has given ASPECT a list of priority sites and will target them first. We would like to start coordination efforts such that ASPECT can assist with priority target assessment, chemical/oil release investigations and to reduce replication of effort.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Sent: Thursday, September 2, 2021 10:44 AM

To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnelio,

I think the affected area is not under your bird but ill pass this anyways. This is our current collection effort.

This is the information I need for new RFIs. You can submit one RFI with a list of targets.

Date of Request: DDMMYY

Priority: 1 Critical (24 hours), 2 High (72 Hrs), 3 Normal (7 Days), 4 Routine (As Available)

Facility Name: S2 Energy West Little Lake

Lat/Lon: 29° 32' 48.96" N 090° 09' 20.16" W

Requesting Agency: Sector NOLA

POC: John Smith

Phone Number: XXX-XXX-XXXX

Email: john.smith@uscg.mil

Last Time Information of Value: DDMMYY

Specific Collection Request: What to you need to know?

Justification: Required for Priority 1 or 2 (Priority 1 requests will only be granted for SAR and Force Reconstitution ATT)

Notes: Provide any amplifying information

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 10:23 AM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

We will be flying in the Terrell, TX this morning for calibrations.

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Sent: Thursday, September 2, 2021 10:12 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

Do you know rough area you intend to fly? I may have targets where you want to be.

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager

Area Command

O: 314-269-2642

C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>

Sent: Thursday, September 2, 2021 9:45 AM

To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

Thank you for your timely response Chief Warrant Officer Richmond,

The ASPECT Team is looking forward to the opportunity to collaborate and can grant permission for the current mission's data to reside on your stormsite. That may change depending on our customer, but likely would not be an issue in the future then either. We have our pre-flight safety briefing in ~1 hour and wheels up shortly thereafter. I'll be reaching out to LT Herr (with a cc to MIFCLANT) shortly. Thank you again for your assistance, and please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>

Sent: Thursday, September 2, 2021 9:26 AM

To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

LT Kevin Herr (CC'd) is running the ISR Collections for Hurricane Ida response. I believe he is the best POC for coordination of flights and coordination for dissemination of data to the appropriate preventions teams.

If able, our team would like to also be copied on any dissemination to the above MIFCLANT Distro email. Also would like permission to hang any products on our stormsite for larger distribution to interested customers. Let me know if that will be an issue

Regards,

CWO3 Patrick L. Richmond
Maritime Intelligence Fusion Center, Atlantic
W: 757-492-4474
C: 508-564-2979

Warning: This document is FOR OFFICIAL USE ONLY (FOUO). It contains information that may be exempt from public release under the Freedom of Information Act (5 U.S.C. 552). It is to be controlled, stored, handled, transmitted, distributed, and disposed of in accordance with DHS policy relating to FOUO information and is not to be released to the public or other personnel who do not have a valid "need-to-know" without prior approval.

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 9:12 AM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Subject: [Non-DoD Source] EPA ASPECT Opening Up Lines of Communication

Good Day,

The U.S. Environmental Protection Agency's (EPA) Airborne Spectrographic Photometric Environmental Collection Technology (ASPECT - <https://www.epa.gov/emergency-response/aspect>) airplane is anticipating a Mission Assignment (MA) to fly in LA. ASPECT provides the capability to provide near real-time screening data for chemical and radiological hazards as well as NADIR/Oblique photometric data. We will be running test flights this morning, and would like to initiate data sharing with USGS HDDS with the assistance USCG District 5/Maritime Intelligence Fusion Center-Atlantic (MIFCLANT) GEOINT team. Any guidance you may be able to provide such that we can start providing data to the right folks while ASPECT is wheels up would be appreciated. Data sets include near real time XML of our flights with initial low resolution data images. ASPECT will also conduct scanning with our chemical sensors and taking Nadir and oblique (as identified by the pilots) photos. Please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

Message

From: Argenta, Edward [Argenta.Edward@epa.gov]
Sent: 9/2/2021 9:11:16 PM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) [Kevin.N.Herr@uscg.mil]
CC: Honnellio, Anthony [Honnellio.Anthony@epa.gov]; Richmond, Patrick L CWO-3 USCG HQS (USA) [Patrick.L.Richmond@uscg.mil]; D05-DG-M-MIFCLANT-GEOINT [D05-DG-M-MIFCLANT-GEOINT@uscg.mil]; Taylor, Jillianne [Taylor.Jillianne@epa.gov]; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) [Ernesto.Muniz@uscg.mil]; Leclaire, Matthew J CIV USCG MIFC LANT (USA) [Matthew.J.Leclaire@uscg.mil]
Subject: Re: EPA ASPECT Opening Up Lines of Communication

We are on ground at BTR for refueling. I'll let Tony track down the rest of the info for you.
Ed

Sent from my iPhone

On Sep 2, 2021, at 5:08 PM, Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil> wrote:

EPA,

Request Freq, callsign, and working altitude of your aircraft. We have a 144 going up in same area. Will pass same when I have it.

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 11:45 AM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

LT Herr,

EPA ASPECT has received authorization to collect data for the Hurricane Ida response. The Team is re-tooling for this mission and should be in the air heading towards St. Charles Parish in about an hour. EPA Region 6 has given ASPECT a list of priority sites and will target them first. We would like to

start coordination efforts such that ASPECT can assist with priority target assessment, chemical/oil release investigations and to reduce replication of effort.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Sent: Thursday, September 2, 2021 10:44 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

I think the affected area is not under your bird but ill pass this anyways. This is our current collection effort.

This is the information I need for new RFIs. You can submit one RFI with a list of targets.

Date of Request: DDMMYY
Priority: 1 Critical (24 hours), 2 High (72 Hrs), 3 Normal (7 Days), 4 Routine (As Available)
Facility Name: S2 Energy West Little Lake
Lat/Lon: 29° 32' 48.96" N 090° 09' 20.16" W
Requesting Agency: Sector NOLA
POC: John Smith
Phone Number: XXX-XXX-XXXX
Email: john.smith@uscg.mil
Last Time Information of Value: DDMMYY
Specific Collection Request: What to you need to know?
Justification: Required for Priority 1 or 2 (Priority 1 requests will only be granted for SAR and Force Reconstitution ATT)
Notes: Provide any amplifying information

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 10:23 AM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

We will be flying in the Terrell, TX this morning for calibrations.

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Sent: Thursday, September 2, 2021 10:12 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

Do you know rough area you intend to fly? I may have targets where you want to be.

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 9:45 AM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

Thank you for your timely response Chief Warrant Officer Richmond,

The ASPECT Team is looking forward to the opportunity to collaborate and can grant permission for the current mission's data to reside on your stormsite. That may change depending on our customer, but likely would not be an issue in the future then either. We have our pre-flight safety briefing in ~1 hour and wheels up shortly thereafter. I'll be reaching out to LT Herr (with a cc to MIFCLANT) shortly. Thank you again for your assistance, and please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>
Sent: Thursday, September 2, 2021 9:26 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnelio,

LT Kevin Herr (CC'd) is running the ISR Collections for Hurricane Ida response. I believe he is the best POC for coordination of flights and coordination for dissemination of data to the appropriate preventions teams.

If able, our team would like to also been copied on any dissemination to the above MIFCLANT Distro email. Also would like permission to hang any products on our stormsite for larger distribution to interested customers. Let me know if that will be an issue

Regards,

CWO3 Patrick L. Richmond
Maritime Intelligence Fusion Center, Atlantic
W: 757-492-4474
C: 508-564-2979

Warning: This document is FOR OFFICIAL USE ONLY (FOUO). It contains information that may be exempt from public release under the Freedom of Information Act (5 U.S.C. 552). It is to be controlled, stored, handled, transmitted, distributed, and disposed of in accordance with DHS policy relating to FOUO information and is not to be released to the public or other personnel who do not have a valid "need-to-know" without prior approval.

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 9:12 AM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Subject: [Non-DoD Source] EPA ASPECT Opening Up Lines of Communication

Good Day,

The U.S. Environmental Protection Agency's (EPA) Airborne Spectrographic Photometric Environmental Collection Technology (ASPECT - <https://www.epa.gov/emergency-response/aspect>) airplane is anticipating a Mission Assignment (MA) to fly in LA. ASPECT provides the capability to provide near real-time screening data for chemical and radiological hazards as well as NADIR/Oblique photometric data. We will be running test flights this morning, and would like to initiate data sharing with USGS HDDS with the assistance USCG District 5/Maritime Intelligence Fusion Center-Atlantic (MIFCLANT) GEOINT team. Any guidance you may be able to provide such that we can start providing data to the right folks while ASPECT is wheels up would be appreciated. Data sets include near real time XML of our flights with initial low resolution data images. ASPECT will also conduct scanning with our chemical sensors and taking Nadir and oblique (as identified by the pilots) photos. Please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

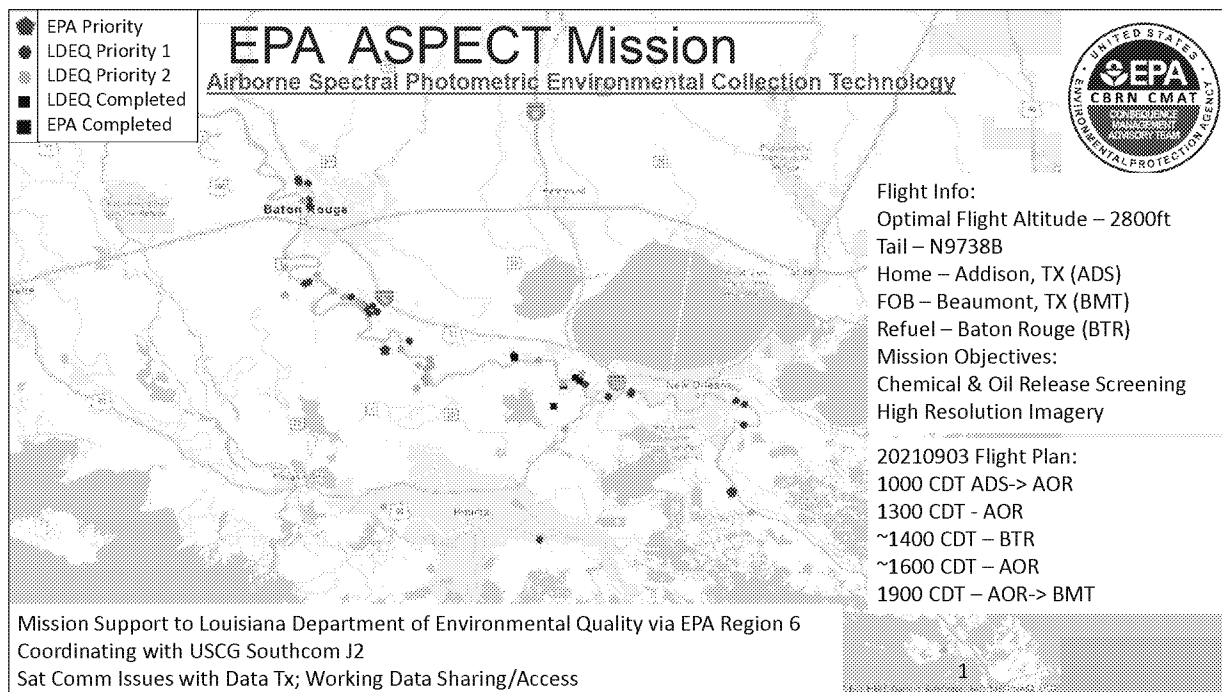
Message

From: Argenta, Edward [Argenta.Edward@epa.gov]
Sent: 9/3/2021 2:57:51 AM
To: Taylor, Jillianne [Taylor.Jillianne@epa.gov]; Honnellio, Anthony [Honnellio.Anthony@epa.gov]; Hudson, Scott [Hudson.Scott@epa.gov]
Subject: FEMA Remote Sensing Slide 20210902
Attachments: 20210902_EPA_Ida_Response.pptx

Thoughts?

Ed

Edward Argenta Jr
Branch Chief
Field Operations Branch
CBRN Consequence Management Advisory Division
Office of Emergency Management
Argenta.edward@epa.gov
Gov't Mobile: 202.843.4511
Office #: 202.564.4528
Office: WJC-N - B517R



Cessna 208B Super Cargo Master Platform - Addison, TX

Range/Aloft Time: Range 1,200 NM; Aloft Time 4 – 6 hours

- An Infrared Line Scanner to image chemical plumes
- A High Speed Infrared Spectrometer to identify and quantify the composition of the chemical plume in the ppb to ppm range
- Gamma-Ray Spectrometer for radiation detection and isotope identification
- Neutron Detection System for enhanced radiological detection
- High resolution digital cameras (aerial & oblique) with ability to rectify for inclusion into GIS
- Broadband Satellite Data System (SatCom)

Message

From: Argenta, Edward [Argenta.Edward@epa.gov]
Sent: 9/3/2021 3:36:43 AM
To: Taylor, Jillianne [Taylor.Jillianne@epa.gov]
CC: Honnellio, Anthony [Honnellio.Anthony@epa.gov]; Hudson, Scott [Hudson.Scott@epa.gov]
Subject: RE: FEMA Remote Sensing Slide 20210902
Attachments: 20210902_EPA_Ida_Response.pptx

Updated with black star.

Edward Argenta Jr
Branch Chief
Field Operations Branch
CBRN Consequence Management Advisory Division
Office of Emergency Management
Argenta.edward@epa.gov
Gov't Mobile: 202.843.4511
Office #: 202.564.4528
Office: WJC-N - B517R

From: Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Sent: Thursday, September 2, 2021 11:05 PM
To: Argenta, Edward <Argenta.Edward@epa.gov>
Cc: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Hudson, Scott <Hudson.Scott@epa.gov>
Subject: Re: FEMA Remote Sensing Slide 20210902

You have two black box icons in the legend - otherwise, looks good! Can we share with the region as well?

Sent from my iPhone

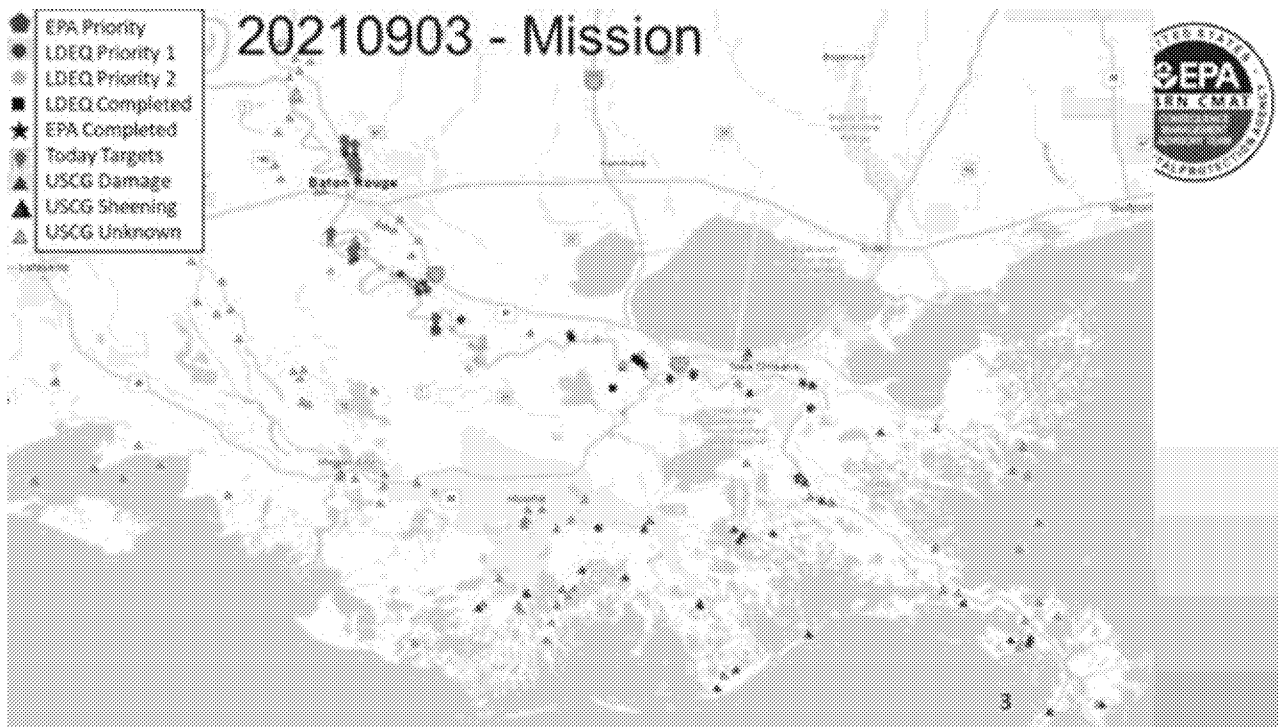
On Sep 2, 2021, at 9:57 PM, Argenta, Edward <Argenta.Edward@epa.gov> wrote:

Thoughts?

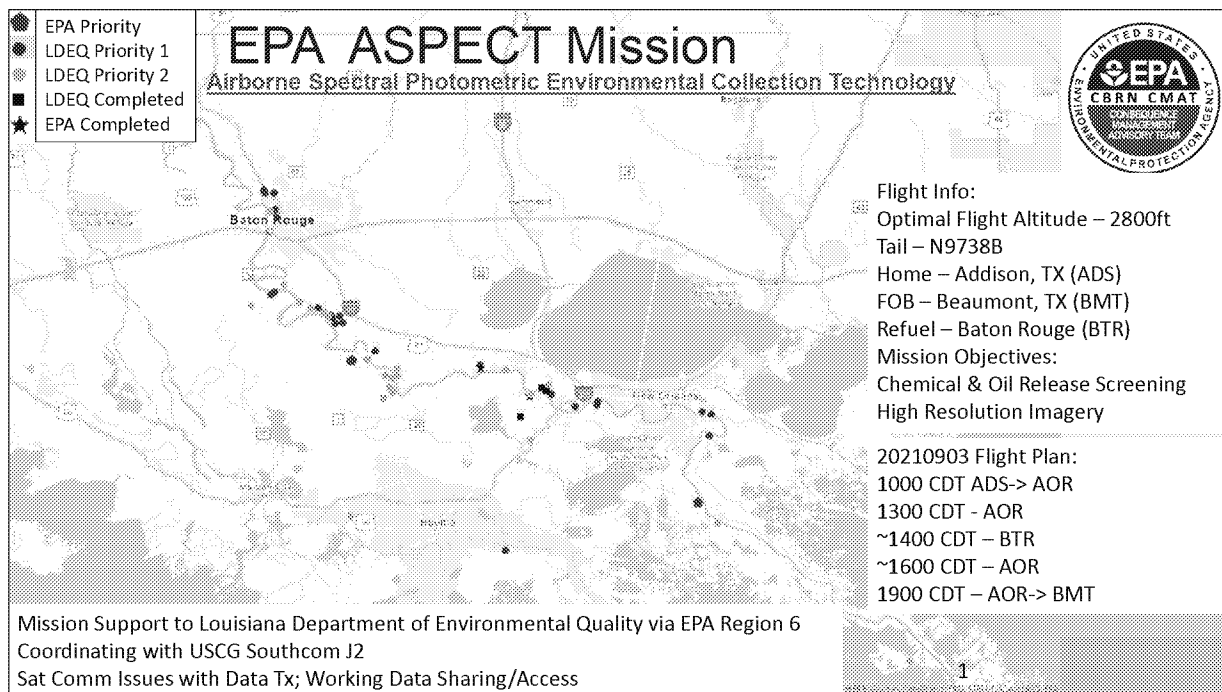
Ed

Edward Argenta Jr
Branch Chief
Field Operations Branch
CBRN Consequence Management Advisory Division
Office of Emergency Management
Argenta.edward@epa.gov
Gov't Mobile: 202.843.4511
Office #: 202.564.4528
Office: WJC-N - B517R

<20210902_EPA_Ida_Response.pptx>



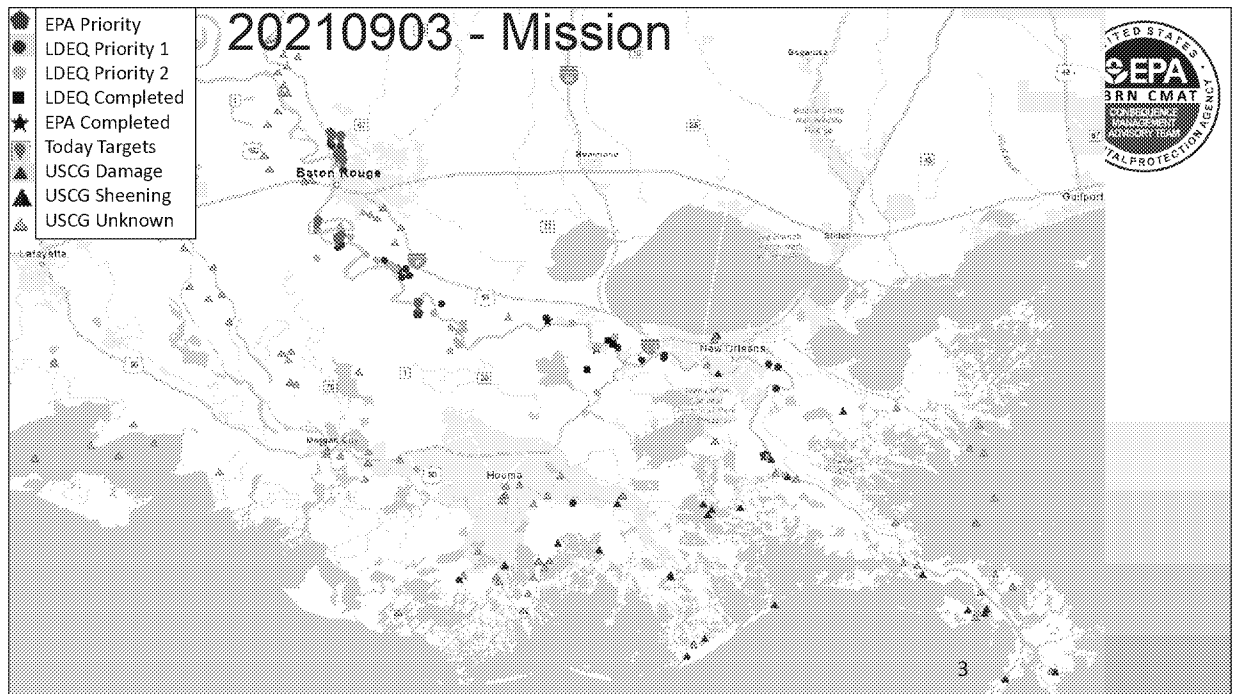
Edward Argenta Jr
Branch Chief
Field Operations Branch
CBRN Consequence Management Advisory Division
Office of Emergency Management
Argenta.edward@epa.gov
Gov't Mobile: 202.843.4511
Office #: 202.564.4528
Office: WJC-N - B517R



Cessna 208B Super Cargo Master Platform - Addison, TX

Range/Aloft Time: Range 1,200 NM; Aloft Time 4 – 6 hours

- An Infrared Line Scanner to image chemical plumes
- A High Speed Infrared Spectrometer to identify and quantify the composition of the chemical plume in the ppb to ppm range
- Gamma-Ray Spectrometer for radiation detection and isotope identification
- Neutron Detection System for enhanced radiological detection
- High resolution digital cameras (aerial & oblique) with ability to rectify for inclusion into GIS
- Broadband Satellite Data System (SatCom)



Cessna 208B Super Cargo Master Platform - Addison, TX

Range/Aloft Time: Range 1,200 NM; Aloft Time 4 – 6 hours

- An Infrared Line Scanner to image chemical plumes
- A High Speed Infrared Spectrometer to identify and quantify the composition of the chemical plume in the ppb to ppm range
- Gamma-Ray Spectrometer for radiation detection and isotope identification
- Neutron Detection System for enhanced radiological detection
- High resolution digital cameras (aerial & oblique) with ability to rectify for inclusion into GIS
- Broadband Satellite Data System (SatCom)

Message

From: Honnellio, Anthony [Honnellio.Anthony@epa.gov]
Sent: 9/4/2021 11:32:49 AM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) [Kevin.N.Herr@uscg.mil]
CC: Taylor, Jillianne [Taylor.Jillianne@epa.gov]; Argenta, Edward [Argenta.Edward@epa.gov]
Subject: FW: ASPECT Report from 02Sept and Plan for 04Sept
Attachments: ASPECT Priority List 04Sept21.xlsx; FEMA_20210904_EPA_Ida_Response.pptx

Good Morning LT Herr,

Please find attached, ASPECT's priority list for today along with a summary of remaining targets. Please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Sent: Saturday, September 4, 2021 12:00 AM
To: Delgado, Eric <Delgado.Eric@epa.gov>; Moore, Gary <Moore.Gary@epa.gov>; Patel, Anish <patel.anish@epa.gov>; Loesel, Matthew <loesel.matthew@epa.gov>; brian.fontenot@la.gov; daniel.lambert@la.gov; Karen Price (DEQ) <Karen.Price2@LA.GOV>; Shaikh, Taimur <Shaikh.Taimur@epa.gov>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Subject: ASPECT Report from 02Sept and Plan for 04Sept

Hello everyone,

The flight crew is in Beaumont for the night. We plan to have a pre-flight brief at 8:00 AM CDT tomorrow, with a target takeoff time of 8:30 AM CDT. The data from this morning's flight is up on the FTP site that I provided you with earlier. The data from the afternoon is still uploading, we will have that ready for you in the morning. I will talk to our technical contractors tomorrow morning about making sure that the oblique photos are geotagged.

I've attached the priority list for our mission tomorrow (there is also a tab showing the sites that were flown today), a map of the sites that we have flown and what we have left to cover (ppt file), and the draft report from yesterday's mission (please thank Ms. Subra in advance for me for her review!).

Please let me know if there is any other information that we can provide you with.

Thank you!
Jill

Jill Taylor
Atmospheric Scientist, ASPECT

CBRN Consequence Management Advisory Division
Environmental Protection Agency
1201 Elm St., Dallas, TX 75270
Work Cell: 214-406-9896

Message

From: Argenta, Edward [Argenta.Edward@epa.gov]
Sent: 9/4/2021 2:04:45 PM
To: Jakabhazy, Elise [Jakabhazy.Elise@epa.gov]; Taylor, Jillianne [Taylor.Jillianne@epa.gov]; Honnellio, Anthony [Honnellio.Anthony@epa.gov]
Subject: RE: Any ASPECT updates?
Attachments: FEMA_20210904_EPA_Ida_Response.pptx

ASPECT is inbound to AOR took off 0850 CDT should be in AOR around 1030.
Ed

Edward Argenta Jr
Branch Chief
Field Operations Branch
CBRN Consequence Management Advisory Division
Office of Emergency Management
Argenta.edward@epa.gov
Gov't Mobile: 202.843.4511
Office #: 202.564.4528
Office: WJC-N - B517R

From: Jakabhazy, Elise <Jakabhazy.Elise@epa.gov>
Sent: Saturday, September 4, 2021 10:03 AM
To: Taylor, Jillianne <Taylor.Jillianne@epa.gov>; Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Argenta, Edward <Argenta.Edward@epa.gov>
Subject: Any ASPECT updates?

I have daily calls with EOC, so please keep me in the loop.

v/r

Elise Jakabhazy, Chief
Planning & Implementation Branch
CBRN Consequence Management Advisory Division
US Environmental Protection Agency
(o) 202-564-1734
(m) 617-680-5541
WJC-N Room 6526
jakabhazy.elise@epa.gov

<https://www.epa.gov/emergency-response/chemical-biological-radiological-and-nuclear-consequence-management>

Message

From: Honnellio, Anthony [Honnellio.Anthony@epa.gov]
Sent: 9/4/2021 12:27:18 PM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) [Kevin.N.Herr@uscg.mil]
CC: Argenta, Edward [Argenta.Edward@epa.gov]; Taylor, Jillianne [Taylor.Jillianne@epa.gov]
Subject: FW: EPA ASPECT Mission Plan for Hurricane Ida Response - 20210904
Attachments: FEMA_20210904_EPA_Ida_Response.pptx

LT Herr,

Please find attached, a summary of what ASPECT has accomplished to date (black icons), our plan for 20210904 (blue icons), and the remaining facilities to screen (red/orange icons). Please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Argenta, Edward <Argenta.Edward@epa.gov>
Sent: Friday, September 3, 2021 11:14 PM
To: McKown, Cody <cody.mckown@fema.dhs.gov>; Russell, Glen <glen.russell@fema.dhs.gov>
Cc: R6 RRC <R6_RRC@epa.gov>; Delgado, Eric <Delgado.Eric@epa.gov>; Mekeel, Edward <mekeel.edward@epa.gov>; Fisher, Bray <fisher.kelsey@epa.gov>; Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Moore, Gary <Moore.Gary@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; Pandey, Siddharth (CTR) <siddharth.pandey@associates.fema.dhs.gov>; Perovich, Gina <Perovich.Gina@epa.gov>
Subject: EPA ASPECT Mission Plan for Hurricane Ida Response - 20210904

Hi All,

Please find the attached slide which summarizes what we accomplished to date (black icons), our plan for 20210904 (blue icons), and the remaining facilities to screen (red/orange icons). You'll find our planned flight times and record of today's(20210903) flight hours. If you'd like this information in a different method/format or would benefit from a table of GPS locations for our planned activities please let me know.

Respectfully,
Ed

Edward Argenta Jr
Branch Chief
Field Operations Branch
CBRN Consequence Management Advisory Division
Office of Emergency Management
Argenta.edward@epa.gov
Gov't Mobile: 202.843.4511
Office #: 202.564.4528

Office: WJC-N - B517R

Message

From: Turville Rick [Rick.Turville@kalmancoinc.com]
Sent: 9/4/2021 5:02:39 PM
To: Taylor, Jillianne [Taylor.Jillianne@epa.gov]
CC: mark [mark@spectralsystemsglobal.com]
Subject: Revised 2 Sept 2021 Report
Attachments: ASPECT Summary - Hurricane Ida 2 September 2021.docx

Jill,

Mark went in and revised the Ida Report for 2 Sept. (Attached). If you are good with this revision, we will use this to build upon as we move forward.

R/ Rick

Airborne Spectral Photometric Environmental Collection Technology

ASPECT Air Quality Survey Baton Rouge, LA. 2 September 2021



ASPECT Mission Supporting:

Eric Delgado
On-Scene Coordinator
Delgado.Eric@epa.gov

Initial Mission Request

Brian Fontenot
Louisiana Department of Environmental
Quality

ASPECT TEAM

Jill Taylor
Chemical/Photometric Lead
Taylor.Jillianne@EPA.gov
214-406-9896

Tony Honnellio
Radiological Lead (Detail)
Honnellio.Anthony@EPA.gov
617 947-4414

Ed Argenta
CBRN CMAD FOB Branch Chief
Argenta.Edward@EPA.gov
202-843-4511

Table of Contents

[TOC \o "1-3" \h \z \u]

Acronyms and Abbreviations

Alt	Altitude (in feet)
AGL	Above Ground Level
cm	centimeter
CST	Central Standard Time
DEM	Digital Elevation Model
Digital	Digital photography file from the Nikon D2X camera
ft	feet
FTIR	Fourier Transform Infrared Spectrometer
igm	Spectral data format based on grams format
IR	Infrared
IRLS	Infrared Line Scanner
jpg	JPEG image format
kts	knots
mph	miles per hour
m/s	meters per second
MSIC	Digital photography file from the Imperx mapping camera
MSL	Mean Sea Level Altitude (in feet)
ppm	parts per million
UTC	Universal Time Coordinated

Executive Summary

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On September 2nd, 2021, the State of Louisiana requested ESF-10 assistance through FEMA and Region 6 asked for the ASPECT plane to be deployed in support of the response to Hurricane Ida. The state wanted assistance monitoring facility emissions in the industrial area between Baton Rouge and New Orleans, where flaring is resulting in the visible emission of black smoke.

ASPECT was tasked to perform remote chemical sensing over target properties to screen for airborne chemicals and take high-resolution photos to provide situational awareness. Potential areas identified for monitoring included: East Baton Rouge, Ascension, Iberville, St. James, St. John, St. Charles, Jefferson, and Orleans.

To support the Hurricane Ida response effort a total of 11 data collection runs (3 tests and 8 site passes) were made. Weather was conducive to successful data collection. Winds were light and predominantly from the West. Some scattered storms formed near Baton Rouge in the late afternoon that were routed around en route to the airport.

ASPECT Air Quality Survey

Hurricane IDA

Baton Rouge, LA

2 September 2021

Background and Operational Overview

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On 2 September 2021, ASPECT was tasked to conduct a wide area air quality screening level assessment of areas populated with Risk Management Plan (RMP) sites and petrochemical facilities using the ASPECT system for detections of any airborne contaminants from ASPECT's 76 chemical detection library in the areas affected by Ida. The Region wanted to know if any detections were found, the location of the detection, and the concentration detected.

After collecting two data sets over the Marathon Petroleum Company, the plane returned to the West side of the Shell Norco Facility and collected data there. Next, the plane headed to the Phillips 66 pipeline site. The ground crew provided two coordinates to the flight crew with instructions to fly from south to north between the two points. The first point started at the coordinate provided by Region 6, and the second point was chosen along a linear clearing which was presumed to be an indication of where the pipeline was buried. Just north of this site was one of the LDEQ priority sites, the Union Carbide Corp. Because it was so close, the flight crew was instructed to collect data there as well before flying to Baton Rouge to refuel and upload data. All sites surveyed are shown in Table 1.

There were no chemical detections at the sites surveyed. Extremely slow satellite transmission speeds (possibly due to high bandwidth use by other first responders) resulted in long delays in data collection. Some chemical photos were pulled down during flight, with the majority needing to be pulled down with a more high-speed internet connection on the ground. Unfortunately, when attempting to process the data on the ground, the computer crashed multiple times, resulting in the decision to return to home base in Addison, TX to switch to a backup computer. The mission will resume on 03

September. It should be noted that flight 1 was a system test mission and is not included in this report. Accordingly, all data collection begins with flight 2.

Table 1. Sites Covered on 02 September 2021 Flight

Facility	Lat	Lon
Shell Chemical LP - Norco Chemical Plant - East Site	29.995556	-90.4097
Marathon Petroleum Company LP - Louisiana Refining Division - Garyville Refinery	30.061322	-90.5935
Shell Chemical LP - Norco Chemical Plant West Site	30.004925	-90.4224
PHILLIPS 66 PIPELINE LLC	29.923889	-90.4825
Union Carbide Corp - St. Charles Plant	29.982289	-90.4556

General Mission Objectives

Once granted access to fly over the sites, the following general mission objectives were employed in conducting data collection with ASPECT:

1. To capture an overall, situational awareness of the incident using aerial photography with:
 - Oblique camera—photos taken by hand from the view/position of the co-pilot, and
 - MSIC photos—advanced camera mounted underneath the plane for a top-down view of the designated sites.
2. To qualitatively locate and characterize any the visible and non-visible components of a plume, as well as any areas on fire:
 - Using the Infrared Line Scanner (IRLS)
3. To screen for the presence and location of specific chemicals within ASPECT's automated chemical detection library:
 - Using the Fourier Transform Infrared (FTIR) Spectrometer

Flight Conditions and Status

Weather and Site Conditions

Prior to each flight, an updated status of the current and forecasted weather, site conditions and any potential flight obstacles including radio towers impacting safety is assessed by the crew. A summary of the ground weather conditions during the missions can be found in Table 2.

**Table 2. Ground Weather for Baton Rouge, LA, Flight 2
2 September 2021**

Time	1153	1253	1353	1453	1550	1653
Wind direction	0 degrees	0 degrees	0 degrees	0 degrees	22.5 degrees NNE	315 degrees NW
Wind speed	1.3 m/s (3.0 mph)	3.1 m/s (7.0 mph)	1.3 m/s (3.0 mph)	2.2 m/s (5.0 mph)	4.0 m/s (9.0 mph)	3.1 m/s (7.0 mph)
Temperature	31.1 C	31.7 C	31.7 C	32.2 C	31.1 C	27.8 C
Relative humidity	63	63	63	64	71	70
Dew point	23.3 C	23.9 C	23.9 C	24.4 C	25.0 C	21.7 C
Pressure	1012.9 mb	1012.6 mb	1011.9 mb	1011.6 mb	1010.6 mb	1010.2 mb
Ceiling	Clear	Clear	Clear	Clear	Few 4100 Ft	Few 3800 Ft

Data Results

The following data is provided as a summary analysis. All data products are available for the Region to access on a shared FTP site. For a complete list of available products, see Appendix A. The data collected during these missions included a flight path summary, IRLS images, FTIR chemical identification and quantification, high resolution MSIC photos, and oblique photos.

Flight Paths

Wide, slow turns are required to be made in between runs to keep the instruments stable. The blue lines indicate the flight path while the green lines indicate the specific sections of the flight where chemical data was collected and processed. On Flight 1 the Baton Rouge area was surveyed, and the flight path is shown in Figure 1.

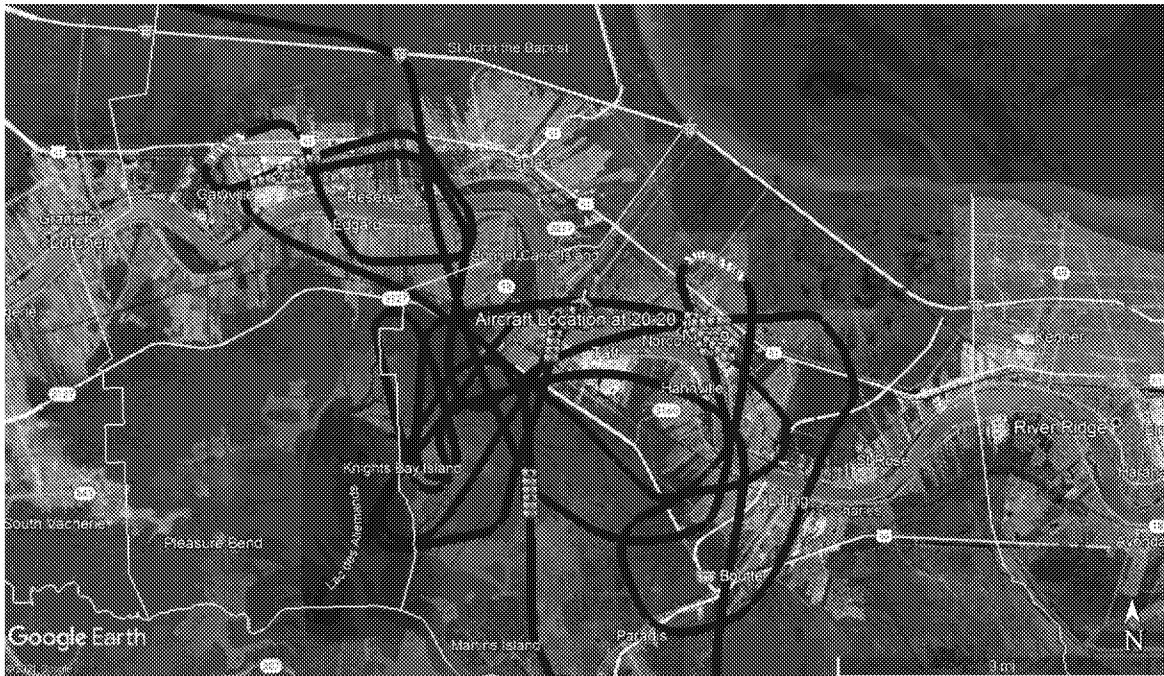


Figure 1. Data Collection Flight Path over the Baton Rouge Area Fight 2,
2 September 2021

Line Scanner Data Results

A total of 11 data collection runs were made over the Baton Rouge area and during each collection run an infrared line scanner image was generated. Figure 2 shows a 3-band infrared image collected over a facility within the survey area. Examination of the image shows two small flares on the western side of the facility. Process piping throughout the facility shows ambient temperatures. No chemical plumes can be observed being emitted from the facility.

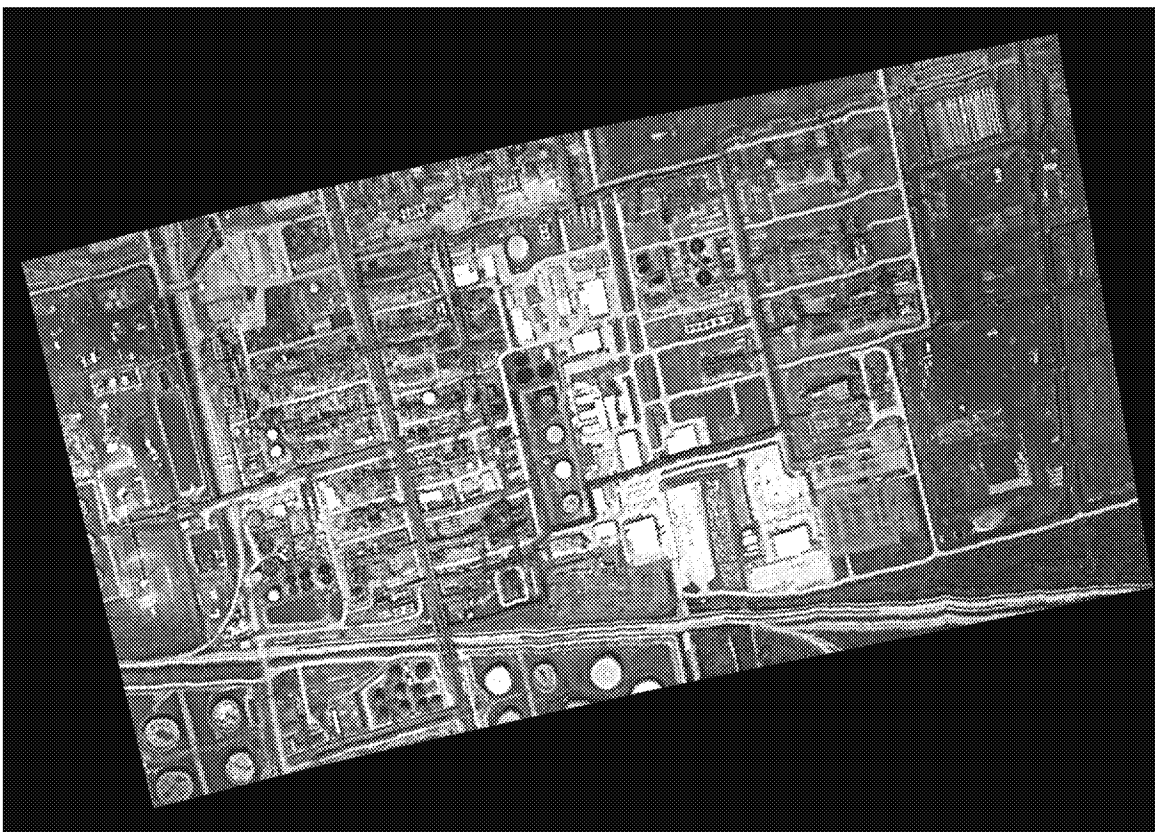


Figure 2. Three band IR image, Baton Rouge Area, Run 5, Flight 2, 2 September 2021

FTIR Data Results

FTIR spectral data at a resolution of 16 wavenumbers was collected for each run. ASPECT uses an automated detection algorithm to permit compounds to be automatically analyzed while the aircraft is in flight. Seventy-six chemical compounds are included in the airborne algorithm library (the list is provided in Appendix B, Table 1). In addition, collected data was also manually quality checked against a collection of published library spectra for each chemical detected.

ASPECT did not detect any programmed compounds (those found in Appendix B, Table 1) as part of the mission over the Baton Rouge areas on 2 September 2021. Details of the monitoring results can be found in Table 2.

**Table 2. Chemical Results Summary
Baton Rouge Collection Area, Flight 2**

Pass	Date	Time (UTC)	Chemical	Max Concentration (ppm)
------	------	------------	----------	-------------------------------

1	2021-09-02	17:21:59	ND	ND
2		17:46:10	ND	ND
3		18:05:06	ND	ND
4		18:57:35	ND	ND
5		19:10:35	ND	ND
6		19:19:22	ND	ND
7		19:28:16	ND	ND
8		19:38:51	ND	ND
9		20:02:54	ND	ND
10		20:11:35	ND	ND
11		20:20:00	ND	ND

Aerial Photography Results

A full set of high-resolution aerial digital photography were collected as part of each data collection pass. Weather conditions over the New Orleans area allowed high quality aerial images to be collected. Figures 3 and 4 show representative overhead and oblique images of the Marathon Petroleum Company imaged on Flight 1.

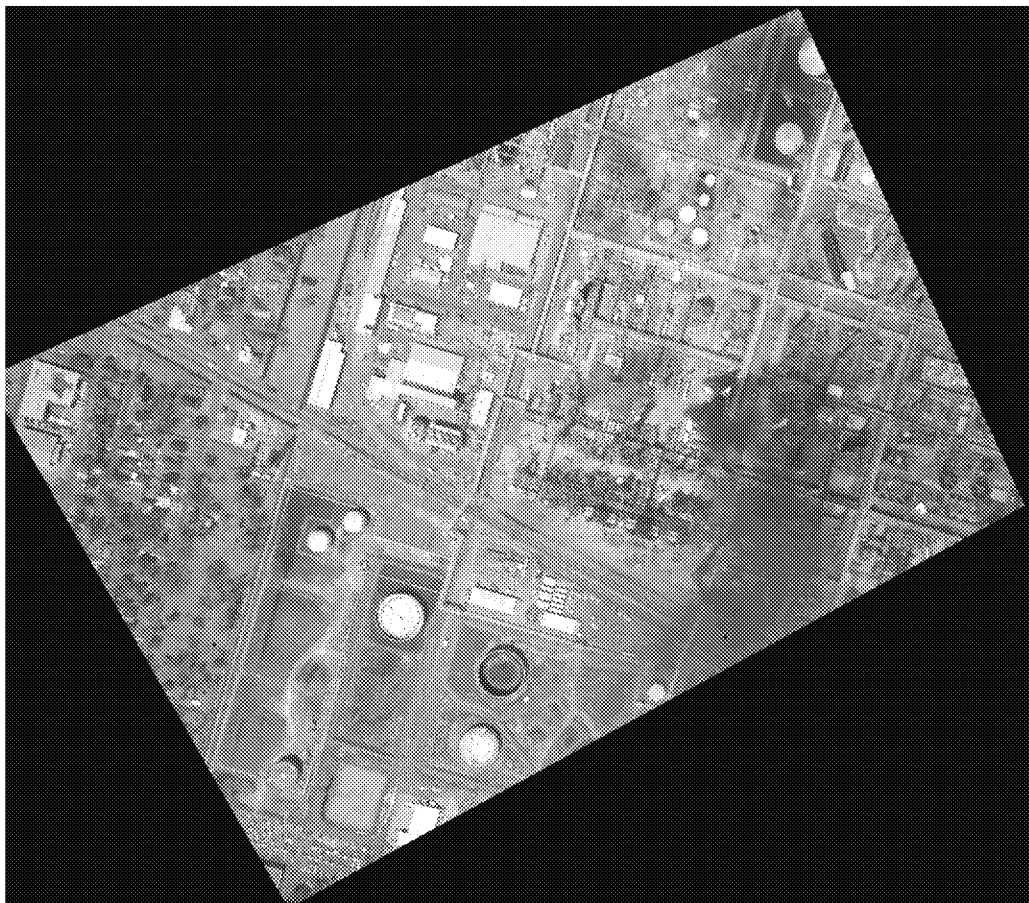


Figure 1. MSIC photo taken over the Marathon Petroleum Facility in Garyville, LA on 02 September 2021



Figure 2. Oblique photo taken over the Marathon Petroleum Facility in Garyville, LA on 02 September 2021

Conclusion

ASPECT conducted one flight mission on 2 September 2021 including air monitoring survey collections over the New Orleans area. Weather conditions were favorable for all types of data collection. Although two black plumes were visible over one of the sites, no major emissions were detected with the FTIR.

Appendix A: File Names of Data Collected During Flight
Baton Rouge Collection Areas, Flight 2, 2 September 2021

Run#	Time (UTC)	Altitude (MSL)	Velocity (knots)	MSIC Data Files	FTIR Data Files	IRLS Data Files	Gamma Files
1	17:21:59	5185	146	20210902172205321.jpg 20210902172212572.jpg 20210902172218935.jpg	20210902_172201_A.igm	2021_09_02_17_22_04_R_01 TA=28.9;TB=49.5;Gain=3	
2	17:46:10	5179	151	20210902174616618.jpg 20210902174622981.jpg 20210902174629329.jpg	20210902_174612_A.igm	2021_09_02_17_46_16_R_02 TA=24.8;TB=44.8;Gain=3	
3	18:05:06	5177	155	20210902180512152.jpg 20210902180519405.jpg 20210902180525768.jpg	20210902_180508_A.igm	2021_09_02_18_05_12_R_03 TA=12.5;TB=32.4;Gain=3	
4	18:57:35	2900	104	20210902185742116.jpg 20210902185748465.jpg 20210902185754814.jpg 20210902185801178.jpg 20210902185807527.jpg 20210902185813891.jpg	20210902_185738_A.igm	2021_09_02_18_57_41_R_04 TA=24.2;TB=44.2;Gain=3	
5	19:10:35	2960	106	20210902191041025.jpg 20210902191048278.jpg 20210902191054643.jpg 20210902191100991.jpg 20210902191107340.jpg	20210902_191038_A.igm	2021_09_02_19_10_41_R_05 TA=24.2;TB=44.4;Gain=3	
6	19:19:22	2968	107	20210902191928464.jpg 20210902191934828.jpg 20210902191942082.jpg 20210902191948446.jpg 20210902191954795.jpg 20210902192001143.jpg	20210902_191925_A.igm	2021_09_02_19_19_29_R_06 TA=29.1;TB=49.2;Gain=3	
7	19:28:16	2971	105	20210902192823176.jpg 20210902192829541.jpg 20210902192835889.jpg 20210902192842254.jpg 20210902192848602.jpg	20210902_192819_A.igm	2021_09_02_19_28_23_R_07 TA=31.4;TB=51.4;Gain=3	
8	19:38:51	2906	104	20210902193856857.jpg 20210902193904126.jpg 20210902193910475.jpg 20210902193916824.jpg 20210902193923188.jpg	20210902_193853_A.igm	2021_09_02_19_38_58_R_08 TA=30.2;TB=50.0;Gain=3	
9	20:02:54	2916	106	20210902200300337.jpg 20210902200306702.jpg 20210902200313051.jpg 20210902200319415.jpg 20210902200325764.jpg 20210902200333033.jpg	20210902_200257_A.igm	2021_09_02_20_03_01_R_09 TA=33.0;TB=52.8;Gain=3	
10	20:11:35	2921	106	20210902201141464.jpg 20210902201147813.jpg 20210902201154162.jpg 20210902201200527.jpg	20210902_201138_A.igm	2021_09_02_20_11_42_R_10 TA=31.4;TB=51.5;Gain=3	
11	20:20:00	2919	105	20210902202006230.jpg 20210902202013499.jpg 20210902202019848.jpg	20210902_202004_A.igm	2021_09_02_20_20_07_R_11 TA=24.3;TB=44.5;Gain=3	

**Appendix B: Priority Sites Provided by EPA Region 6 & Louisiana Department of
Environmental Quality**

Facility_Name	Latitude	Longitude	Parish
Deltech LLC - Baton Rouge Facility	30.552892	-91.200536	East Baton Rouge
ExxonMobil Chemical Co - Baton Rouge Plastics Plant	30.551419	-91.175611	East Baton Rouge
ExxonMobil Baton Rouge Chemical Plant	30.484336	-91.169644	East Baton Rouge
Marathon Petroleum Co LP	30.068394	-90.596364	St. John the Baptist
Westlake Vinyls Co LP	30.209167	-91.017222	Ascension
Valero Refining - Meraux LLC - Meraux Refinery	29.930222	-89.944917	St. Bernard
Cornerstone Chemical Company	29.964722	-90.264722	Jefferson
Chalmette Refining LLC	29.937903	-89.969903	St. Bernard
ExxonMobil Chemical Company - Baton Rouge Chemicals North Plant	30.50465	-91.173219	East Baton Rouge
Equilon Enterprises LLC - Norco Refinery	29.995372	-90.410167	St. Charles
The Dow Chemical Company - Louisiana Operations	30.313927	-91.240586	Iberville
Rubicon LLC - Geismar Facility	30.20139	-91.01222	Ascension
BASF Corp - Geismar Site	30.18425	-91.002778	Ascension
Union Carbide Corp - St. Charles Plant	29.982289	-90.455622	St. Charles
Phillips 66 Co - Alliance Refinery	29.68406	-89.98145	Plaquemines
Axiall LLC - Plaquemine Facility	30.267167	-91.184258	Iberville
ExxonMobil Fuels & Lubricants Co - Baton Rouge Refinery	30.484392	-91.169444	East Baton Rouge
Equilon Enterprises LLC dba Shell Oil Products US - Convent Refinery	30.107684	-90.890796	St. James
Marathon Petroleum Company LP - Louisiana Refining Division - Garyville Refinery	30.061322	-90.593528	St. John the Baptist
BASF Corp - Zachary Site	29.547603	-90.523231	East Baton Rouge
Occidental Chemical Corporation - Geismar Facility	30.18819	-90.98188	Ascension
St Rose Refinery LLC - St Rose Refinery	29.950875	-90.328497	St. Charles
ExxonMobil Chemical Co - Baton Rouge Polyolefins Plant	30.56215	-91.20387	East Baton Rouge
Shell Chemical LP - Norco Chemical Plant West Site	30.004925	-90.422381	St. Charles
NOVA Chemicals Olefins LLC - Geismar Ethylene Plant	30.230619	-91.052884	Ascension
Roehm America LLC - MMA Plant	29.9575	-90.265833	Jefferson
Valero Refining - New Orleans LLC - St Charles Refinery	29.985781	-90.3955	St. Charles
Shell Chemical LP - Norco Chemical Plant - East Site	29.995556	-90.409722	St. Charles
BASF Corp - North Geismar Site	30.20594	-90.99195	Ascension

Stolthaven New Orleans, LLC - Braithwaite Facility	29.870919	-89.949339	Plaquemines
Shintech Louisiana LLC - Shintech Plaquemine Plant	30.273611	-91.173333	Iberville
Denka Performance Elastomer LLC	30.053928	-90.524792	St. John the Baptist
Formosa Plastics Corp Louisiana	30.501722	-91.185944	East Baton Rouge
DuPont Specialty Products USA LLC - Pontchartrain Site	30.05388	-90.52472	St. John the Baptist
Occidental Chemical Corp - Taft Plant	29.987222	-90.454722	St. Charles
Syngenta Crop Protection LLC - St Gabriel Plant	30.246728	-91.103508	Iberville
Mosaic Fertilizer LLC - Faustina Plant	30.083914	-90.91345	St. James
Mosaic Fertilizer LLC - Uncle Sam Plant	30.037222	-90.8275	St. James
LBC Baton Rouge LLC - Sunshine Terminal	30.294444	-91.148333	Iberville
Occidental Chemical Corporation - Convent Facility	30.055885	-90.830594	St. James
TOTAL Petrochemicals & Refining USA Inc - Carville Polystyrene Plant	30.229786	-91.073631	Iberville
Targa Midstream Services LLC	29.237034	-89.384977	Plaquemines
EnLink LIG Liquids LLC - Plaquemine Gas Processing Plant	30.236389	-91.241389	Iberville
EnLink LIG Liquids LLC - Gibson Gas Processing Plant	29.643056	-90.961944	Terrebonne
NuStar Logistics LP - St James Terminal	30.030065	-90.843463	St. James
Enterprise Gas Processing LLC - Norco Fractionation Plant	30.015411	-90.402958	St. Charles
Lone Star NGL Refinery Services LLC - Geismar Fractionation Plant	30.218889	-91.035833	Ascension
INEOS Oxide - A Division of INEOS Americas LLC	30.313889	-91.240278	Iberville
Discovery Producer Services LLC - Discovery Paradis Fractionation Plant	29.858889	-90.453333	St. Charles
Plains Marketing LP - St James Terminal	30.004341	-90.848449	St. James
Methanex USA Services LLC - Geismar Methanol Plant	30.206667	-91.020833	Ascension
Dyno Nobel LA Ammonia LLC - Ammonia Production Facility	29.964789	-90.264625	Jefferson
Kinder Morgan Liquids Terminals LLC - Geismar Methanol Terminal	30.205389	-91.023792	Ascension
South LA Methanol LP - St James Methanol Plant	30.039917	-90.863819	St. James
YCI Methanol Plant	29.97481	-90.86775	St. James
IGP Methanol LLC - Gulf Coast Methanol Complex	29.625453	-89.926611	Plaquemines
KMe St James Holdings LLC - Methanol Terminal	29.990919	-90.841239	St. James
Kemira Chemicals Inc	29.964722	-90.264722	Jefferson
PHILLIPS 66 PIPELINE LLC	29.923889	-90.482498	St. Charles
CF INDUSTRIES	30.08328	-90.957665	Ascension

Appendix C: ASPECT Systems

The US EPA ASPECT system collects airborne infrared (IR) images and chemical screening data from a safe distance over the site (about 3,000 ft AGL). The system consists of an airborne high-speed Fourier Transform Infra-Red (FTIR) spectrometer coupled with a wide-area IR Line Scanner (IRLS). The ASPECT IR systems can detect chemical compounds in both the 8-to-12-micron (800 to 1200 cm^{-1}) and 3 to 5 micron (2000 to 3200 cm^{-1}) regions. List of chemicals and detection limits are listed in Table 1. The 8 to 12 micron region is typically known as the atmospheric window region since the band is reasonably void of water and carbon dioxide influence. Spectrally, this region is used to detect carbon - non-carbon bonded compounds. The 3 to 5 micron region is also free of water and carbon dioxide but typically does not have sufficient energy for use. This band does show use in high-energy environments such as fires. The carbon - hydrogen stretch is very common in this region.

An Imperx mapping camera (29 mega pixels; mapping focal plane array) is concurrently operated as part of all chemical collections. These images are often digitally processed in lower resolution, so they can be transmitted via satellite communication. All imagery is geo-rectified using both aircraft attitude correction (pitch, yaw, and roll) and GPS positional information. Imagery can be processed while in flight or approximately 600 frames per hour can be processed once the data are downloaded from the aircraft. The high-resolution images (>20 MB each) are pulled from the ASPECT after the sortie and are available later.

All aerial photographic images collected by the ASPECT system are ortho-rectified and geospatially validated by the scientific reach back team. In general, this consists of conducting geo-registration using a USGS Digital Elevation Model (DEM) which promotes superior pixel computation and lessens topographic distortion. The image is checked by the team (using a Google Earth base map) for proper location and rotation.

Airborne radiological measurements are conducted using three fully integrated multi-crystal sodium iodide (NaI) RSX4 gamma ray spectrometers. Each RSX4 spectrometer contains four 4"x2"x16" doped NaI crystals each having an independent photomultiplier/spectrometer assembly. One RSX unit is configured with an additional upward NaI crystal utilized to provide real-time cosmic ray correction. Count and energy data from each crystal and pack is combined using a self-calibrating signal processor to generate a virtual detector output. All radiological spectrometer "packs" are further combined using a signal console controlled by the on-board central computer in the aircraft. Altitude correction data is provided by a radar altimeter with internal GPS systems within the packs serving as a backup. It should be noted that no radiological measurements were conducted on this mission.

Data is processed using automated algorithms onboard the aircraft with preliminary results being sent using a satellite system to the ASPECT scientific reach back team for QA/QC analysis. Upon landing, preliminary data results are examined and validated by the

scientific reach back team.

Table 1. ASPECT Automated Compounds

This table contains ASPECT's library of automated compounds.

Detection limits are for each chemical is found in parenthesis in units of parts per million (ppm)

Acetic Acid (2.0)	Cumene (23.1)	Isoprene (6.5)	Phosphine (8.3)
Acetone (5.6)	Diborane (5.0)	Isopropanol (8.5)	Phosphorus Oxychloride (2.0)
Acrolein (8.8)	1,1-Dichloroethene (3.7)	Isopropyl Acetate (0.7)	Propyl Acetate (0.7)
Acrylonitrile (12.5)	Dichloromethane (6.0)	MAPP (3.7)	Propylene (3.7)
Acrylic Acid (3.3)	Dichlorodifluoromethane (0.7)	Methyl Acetate (1.0)	Propylene Oxide (6.8)
Allyl Alcohol (5.3)	1,1-Difluoroethane (0.8)	Methyl Acrylate (1.0)	Silicon Tetrafluoride (0.2)
Ammonia (2.0)	Difluoromethane (0.8)	Methyl Ethyl Ketone (7.5)	Sulfur Dioxide (15)
Arsine (18.7)	Ethanol (6.3)	Methanol (5.4)	Sulfur Hexafluoride (0.07)
Bis-Chloroethyl Ether (1.7)	Ethyl Acetate (0.8)	Methylbromide (60)	Sulfur Mustard (6.0)
Boron Tribromide (0.2)	Ethyl Acrylate (0.8)	Methylene Chloride (1.1)	Sulfuryl Fluoride (1.5)
Boron Trifluoride (5.6)	Ethyl Formate (1.0)	Methyl Methacrylate (3.0)	Tetrachloroethylene (10)
1,3-Butadiene (5.0)	Ethylene (5.0)	MTEB (3.8)	1,1,1-Trichloroethane (1.9)
1-Butene (12.0)	Formic Acid (5.0)	Naphthalene (3.8)	Trichloroethylene (2.7)
2-Butene (18.8)	Freon 134a (0.8)	n-Butyl Acetate (3.8)	Trichloromethane (0.7)
Carbon Tetrachloride (0.2)	GA (Tabun) (0.7)	n-Butyl Alcohol (7.9)	Triethylamine (6.2)
Carbonyl Fluoride (0.8)	GB (Sarin) (0.5)	Nitric Acid (5.0)	Triethylphosphate (0.3)
Carbon Tetrafluoride (0.1)	Germane (1.5)	Nitrogen Mustard (2.5)	Trimethylamine (9.3)
Chlorodifluoromethane (0.6)	Hexafluoroacetone (0.4)	Nitrogen Trifluoride (0.7)	Trimethyl Phosphite (0.4)
Chloromethane (12)	Isobutylene (15)	Phosgene (0.5)	Vinyl Acetate (0.6)

Message

From: Turville Rick [Rick.Turville@kalmancoinc.com]
Sent: 9/4/2021 6:25:09 PM
To: Taylor, Jillianne [Taylor.Jillianne@epa.gov]
CC: mark [mark@spectralsystemsglobal.com]
Subject: Revised report for 2 September 2021
Attachments: ASPECT Summary - Hurricane Ida 2 September 2021 V2.docx

Jill,

Please find attached revisions to the report for 2 Sept 2021. Mark has found all references to flight 1 and corrected.

R/ Rick

Rick Turville
Kalman and Company, Inc.
1000 Corporate Center, Suite 301
Stafford, VA 22554
540-628-7325 - Office
757-353-8302 - Cell